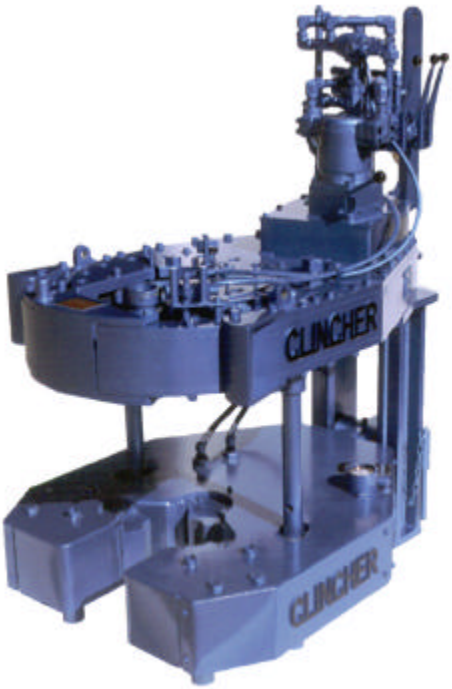
SUPERIOR
Manufacturing & Hydraulics

TECHNICAL MANUAL

7 5/8" CLINCHER® UHT TONG

AND

7 5/8" UHT BACKUP



COVERS
TONG MODELS
CLE7625 UHT / CLE7625HT

BACKUP MODELS
BUC7625 / BUC7625-01 / BUC7625-02

HANGER ASSEMBLY
BUC7600

4225 Highway 90, East
Broussard, Louisiana 70518
Phone: (337) 837-8847
Fax: (337) 837-8839
www.superior-manf.com

Published 04/2004

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The products described in this manual are covered by U.S. and foreign Patents and/or pending Patent Applications.

This manual is not a controlled document and is subject to revision without notice. To receive updates and insure you have access to the latest information concerning the 7 5/8" CLINCHER® UHT Tong and Backup, we request you complete this form and return the lower half to SUPERIOR Manufacturing and Hydraulics by mail or facsimile. Access to our manuals can also be acquired through our web site www.superior-manf.com. Select the tab 'CLINCHER® Products', select the equipment from the list to get Specs page, select the tab 'Download Manual'.

Name: _____
Company: _____
Address: _____
Address: _____
City: _____ **State:** _____
Postal Code: _____ **Country:** _____
Telephone: _____ **Fax:** _____

Tong Model No.: _____ **Serial No.:** _____
Backup Model No.: _____ **Serial No.:** _____
Assembly Date: _____

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7 5/8" CLINCHER® UHT Tong and Backup
Technical Manual Registration Form

Name: _____
Company: _____
Address: _____
Address: _____
City: _____
Postal Code: _____ **Country:** _____
Telephone: _____ **Fax:** _____

Tong Model No.: _____ **Serial No.:** _____
Backup Model No.: _____ **Serial No.:** _____
Assembly Date: _____

Return To:

SUPERIOR Mfg. & Hyd.
4225 Hwy. 90 East
Broussard, LA 70518
USA

Telephone: 337-837-8847
Facsimile: 337-837-8839
Web Site: www.superior-manf.com

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7 5/8" CLINCHER® UHT TONG and 7 5/8" UHT BACKUP

REVISION TABLE

Section	*Page*	*Date*	*Description*
3	5	06/2004	Minor revision in notes of chart.
9	20, 22, 28	06/2004	Revised illustrations Top Cage Plate Assembly, Bottom View, & Bridle Assy.
10	3, 4, 15	06/2004	Revised illustrations Backup Top View, Backup Top View w/o Top Plate, & Hydraulic Schematic *(2nd Generation).*
Cover	Cover	02/2005	Removed ISO Emblems.
Title Pg.	Title Pg.		
3	7-10		
12	5-10		
7	1	02/2005	Chg. PN for Std. Jaw Rollers (4 1/8" - 7 5/8") from 76014 to 76014-01. Chg. PN for LF Jaw Rollers (4 5/8" - 7 5/8") from 76008 to 76008-01.
	21-22	02/2005	Revised Parts List's CJ-76B & CJ-LF-76B.
9	32 & 34	02/2005	Revised Illustrations Jaw Assembly CJ-76B & CL-LF-76B.
10	3, 8, 10 & 15	02/2005	Revised Illustrations Backup Top View, 7 5/8" Backup Dovetail Die Adapter, Valve Bank Assembly, & Hydraulic Schematic *(2nd Generation).*
Copyright	Copyright	03/2006	Added **CHROMEMASTER™**, **HYTOPS™**, Drillmaster, **GRIT FACE™** & Low Friction.
2	3	03/2006	Revised Specs.
3	5	03/2006	Revised Jaw P/N's on Dovetail Chart.
	6		Revised size ranges & jaw P/N's on Splined Chart.
7	1	03/2006	Revised Recommended Spare Parts List.
9	3, 4, 15, 17, 20, 22 31-36	03/2006	Revised Illustrations.
10	10	03/2006	Revised Valve Bank illustration.
14	17-20	03/2006	Added Dump Valve illustration & Dump Valve Electrical Connector Assy. Steps.
9	1, 28, 30 34-35	02/2007	Added Roller Identification illustration. Revised illustrations Bridle Assy. 55001-01, LF Jaw Assy. CJ-LF-76B, and CLE7625 Jaw Comparison.
14	all	02/2007	Replaced with revised valve tech. data, added page numbers.
TOC	TOC	12/2007	Section 7-Removed Parts Lists.
3	5-14	12/2007	Revised Dovetail Jaw/Die Chart Manuf. Before 11/19/07. Added Dovetail Jaw/Die Chart Manuf. After 11/19/07. Renumbered remaining pgs.
7	3-40	12/2007	Removed all Parts Lists.
9	1-2, 36-38	12/2007	Added illustrations Dovetail LF Jaw Set Assy. CJDTLF78X and Dovetail Jaw Set Assy. CJDT78X. Revised illustration Dovetail Jaw Set Assy. CJDT76X.
10	10, 15	12/2007	Revised illustrations 4-Bank Valve Assy. & Hydraulic Schematic (corrected illustration of tong door valve).

7 5/8" CLINCHER® UHT Tong and Backup

HAZARD WARNING

Nomenclature used in this manual:

WARNING	concerns an operating procedure or practice that, if not strictly observed, can result in injury to personnel or loss of life
Caution	concerns an operating procedure or practice that, if not strictly observed, can result in damage to or destruction of equipment
Note	concerns an operating procedure or practice that needs highlighting

CLINCHER® UHT Tongs and Backups are manufactured to provide a means of making up or breaking out high torque tubular connections. They utilize high pressure hydraulic fluid power which can cause the tong to move suddenly and with great force if the tong is not properly rigged up and operated. **CLINCHER®** Tongs and Backups contain rotating and reciprocating parts which can severely or fatally injure personnel who are operating, repairing, or near this equipment during its operation. **WARNING: Tongs and Backups are not to be operated by untrained personnel or personnel with diminished physical or mental capacity. No work of any type, including changing of dies, is to be carried out while the tong and backup are connected to any hydraulic power unit.**

CLINCHER® UHT Tongs and Backups are heavy tools. They should be suspended from a secure, high strength 7/8" IWRC minimum diameter wire cable with a 31 ton minimum breaking strength. The wire rope should be hung as close to the center of the wellbore as possible, without interfering with drilling equipment operation, to allow the tong to be readily swung into the working position. Vertical position control should be achieved by means of a **CLINCHER®** hydraulically operated lift cylinder/spring hanger. **WARNING: Users must insure the entire suspension system including cables, rig mounting points, lift cylinders, tong lifting brackets/bridles, winches, pulleys, counter weights, etc., are capable of handling the static weight of the tong and backup plus any loads which could be transferred to it during the makeup or breakout process PLUS any shock loads which may be seen during operation. This system must readily allow downward movement equal to a minimum of the thread makeup distance to avoid overloading the suspension system and/or damage to equipment.**

A 1" IWRC minimum diameter wire cable with a 51.7 ton minimum breaking strength or better, should be attached at a 90 degree angle to the tong and at the same level to insure proper readout of torque indicator. A SNUBBING LINE should always be attached even when an integral backup is in use to provide additional safety in the event of a backup slippage. **WARNING: Users must provide a means of safely controlling the tong and backup movements in all directions when it is in use. Failure to account for its size, weight, movement and the amount of torque developed could result in personnel injury or death.**

7 5/8" CLINCHER® UHT Tong and Backup

HAZARD WARNING

CLINCHER® Tongs and Backups utilize high pressure hydraulic fluids. Portions of the tong and backup, control valves, hydraulic lines and cylinders may contain high pressure fluid even when the power unit is de-energized and the fluid supply hoses are disconnected. During normal operation the temperature of the hydraulic fluids as well as hoses, piping, valves, etc., can rise to a level which can cause burns. **WARNING: Personal protective gear including safety glasses, face shields, protective gloves and protective clothing must be worn to guard against the hazards of high pressure fluids. Tight fitting clothing is required to prevent entanglement in rotating components. These tools should be serviced by thoroughly trained and qualified hydraulic technicians using procedures to safely insure hydraulic pressure is bled from these circuits.**

The **CLINCHER®** UHT Tong is equipped with a door interlock system which prevents tong rotation whenever the door is open. This system is to be tested before each mobilization and at every shift change. Should this system be determined to be inoperative, the tong is to be removed from service and tagged as ***in-operative*** until repairs are made. **CAUTION:** Operating the tong with the door in the open position could result in severe damage to the equipment and will void all manufacturer warranties. **WARNING: Operating the tong with the door open by means of a defective or bypassed door interlock system exposes the operator and nearby personnel to potentially fatal hazards.**

No attempt should be made to operate the **CLINCHER®** UHT Tong and Backup for any purpose other than which it is intended. This system is capable of generating very large clamping forces and torsional loads which, if improperly applied or controlled, could result in damage to the tubular, to the tong and backup, or could possibly result in injury or death of personnel. Do not attempt to operate the unit without correct dies and the proper size tubular being in the tong and backup. See Section 3 for more information concerning the selection and use of dies.
CAUTION: Operating this equipment without the correct size, type, and orientation of dies can result in damage to the equipment or tubulars being handled.

HYDRAULIC PRODUCT SAFETY

WARNING: Valve lever (spool) may "stick" (not center) under certain conditions allowing the hydraulic equipment to continue to operate and could cause serious injury, death or equipment failure.

VALVE SAFETY: Read and follow instructions carefully. Failure to observe instructions and guidelines may cause serious injury, death or equipment failure. A sticking valve (spool bind) may be caused by one or more of the following factors:

DIRTY OIL: Oil must be filtered to a minimum of 25 microns. Filters should be changed regularly - spin-on types after 50 hours of initial use and then after every two hundred fifty hours of use. Use of a condition indicator is recommended. Consult your tractor or implement owner's manual for filtration and changing recommendations for internal systems.

OIL REQUIREMENTS: Premium quality anti-wear type oil with a viscosity between 100 and 200 SSU at operating temperatures. Certain synthetic oils may cause spool seals to swell and the valve to stick. If in doubt, call CROSS Engineering.

IMPROPER HOOK UP OR MOUNTING: Always use the proper size fittings. Hook up "in" & "out" as noted on the valve body. Do not overtorque pipe fittings. Mounting surfaces should be flat and care should be used when tightening mounting bolts. Over-tightened bolts can cause spool bind and casting breakage. When hooking a valve in series, always use a power beyond sleeve. Consult your tractor or implement manual to make sure you have the proper quick disconnect line connected to the inlet of the remote valve.

MISAPPLICATION: Always use the proper valve for the job. CONVERTA, CD, CS or CA valves should never be used for metered heavy load lifting - loaders or similar applications. Use an open center valve for open center applications and a closed center valve for closed applications. If in doubt, check with your tractor dealer. Contact CROSS if the valve allows the hydraulic equipment to creep excessively.

MAINTENANCE: Make sure all bolts are tightened and torqued to the recommended specification. Bent or broken parts should not be used. Replace immediately. Always use exact replacements. Always protect valve spool from paint overspray.

Faulty quick disconnects can cause high back pressures and sticking spools. Check quick disconnects periodically to make sure they are functioning properly. If valve spool does not center or appears to stick, do not use!

PUMPS & MOTORS SAFETY:

A relief or bypass in your hydraulic system is necessary to prevent pump from breakage due to overpressurization. Use correct fittings and proper oil as noted in the technical service manual packed with each unit. Change oil as recommended by your implement or tractor manufacturer.

CYLINDER SAFETY:

Check clevis clearances before, during and after extending the cylinder and before using the cylinder under pressure to avoid possible injury, or bent or broken rods caused by binding. Never operate a cylinder above recommended pressures. Never use a cylinder as a safety device when transporting equipment.

PINHOLE LEAKS:

If you observe a pinhole leak, discontinue use of the component. If oil has penetrated your skin or contacted your eye, seek medical attention immediately!

DESCRIPTION and APPLICATION

The **CLINCHER®** UHT Tong and Backup system is an "open-throat" design which can handle tubulars as small as 2 1/16 inches to as large as 7 5/8 inches in diameter. This system features two (2) jaws in the tong and three (3) jaws in the backup which encircle the pipe. Wrap around jaws and dies, combined with our low friction jaw technology, constant radial load cam system and compensating jaw design provide exceptional gripping capabilities with reduced pipe deformation, stress and marking. Using our non-marking aluminum die system or **GRIT FACE™** dies in the UHT Tong and Backup will now allow stainless steel corrosion resistant alloys (CRA) to be run as quickly and easily as a traditional tong runs conventional steel tubulars.

Notable Features and Benefits

Low Friction Jaws	increases cam angle efficiency to allow use of aluminum dies
Splined Die System	aligns the die with the tubular and more evenly distributes radial load, essentially wrapping the die around the tube reduces pipe stress, deformation and minimizes marking
Constant Cam Angle	insures an adequate radial load is available regardless of relative rotation to enhance performance on undersized pipe
Die Retention Method	provides an enhanced method of preventing equipment damage and die loss if the pipe is inadvertently moved while the tong or backup are still gripping the pipe

In addition to these unique features listed above, the **CLINCHER®** UHT Tong and Backup System is also equipped with numerous standard features including:

Door Interlock	prevents tong ring gear rotation whenever the tong door is open but allows control and operation of backup and lift cylinder at all times
Encoder Adapter	accepts customer's turns encoder to signal to a torque/turn computer
Pressure Control Valve	adjustable pressure control valves allow the customer to limit the amount of pressure applied and torque developed
Tong Handles with Closed Covers	protects operators hands

The features described above are covered by US and foreign patents or pending US and foreign patents.

DESCRIPTION and APPLICATION

TONG APPLICATION

After completing the make-up or break-out cycle, the jaws are opened by reversing the tong motor to drive the ring gear and cam surfaces in the opposite direction until the reversing pin contacts the ring gear shoulder. Springs are used to return the jaws to their fully open position.

BACKUP APPLICATION

The **CLINCHER®** UHT Backup's front jaws are hydraulic cylinders. During a jaw closing cycle, the front jaws advance and clamp the pipe against the fixed rear jaw. Once locked on the pipe, pressure is locked in the backup cylinder by a load holding valve. When opening, the front jaws retract to allow the pipe to be removed.

The **CLINCHER®** UHT **LOCKJAW™** Backup has an "open throat" design with three jaws that encircle the pipe. The front jaws are operated by cam surfaces on the rear jaw cylinder. During a jaw closing cycle, the front jaws swing in and interlock as the rear die approaches the pipe. Once locked on the pipe, pressure is locked in the backup cylinder by a load holding valve. When opening the backup jaws, the cylinder operation is reversed to retract the rear die and unlock the jaws. Springs move the front jaws to their fully open position.

SPECIFICATIONS

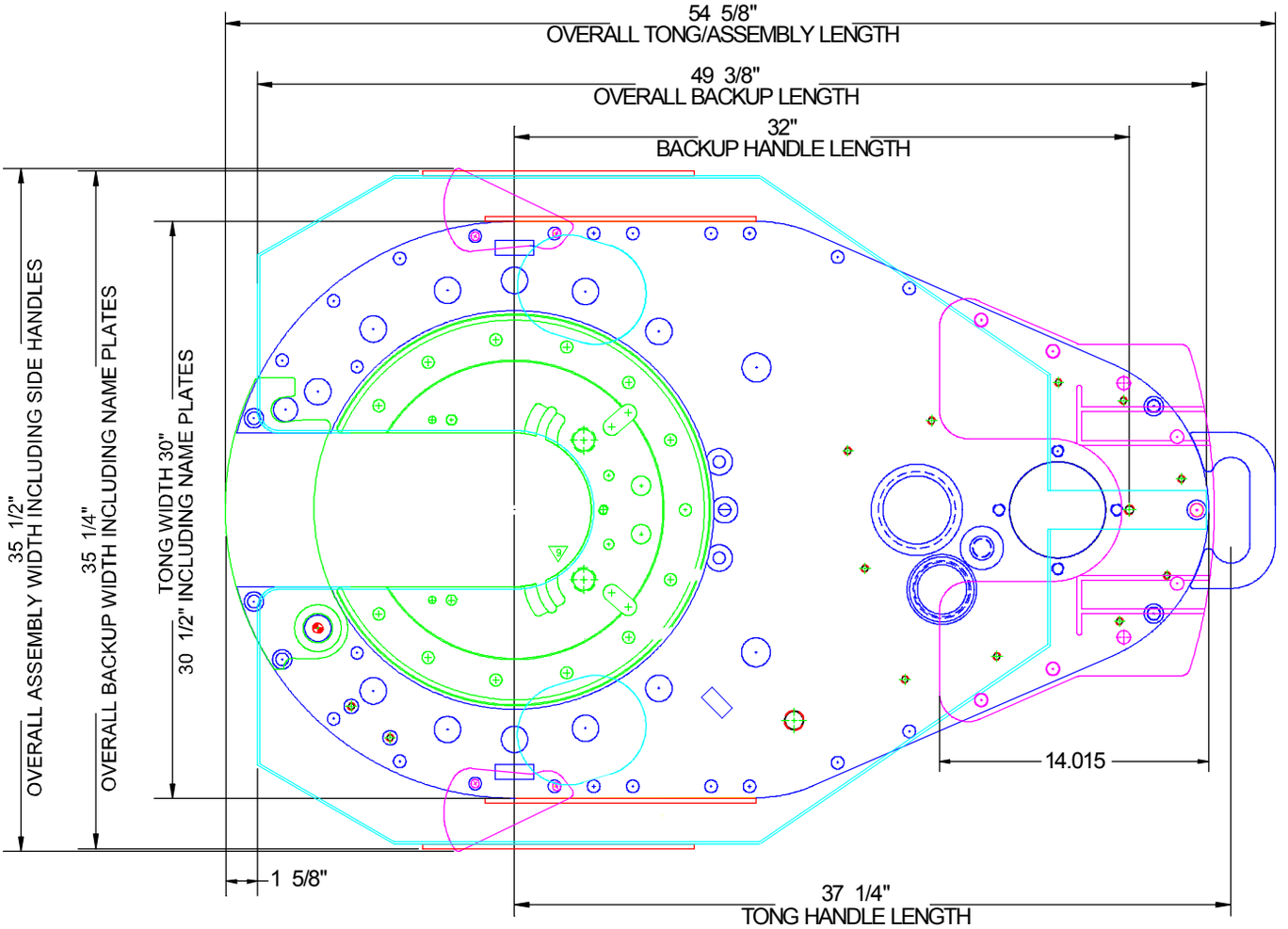
Maximum Torque [1]	
High Gear	3,500 ft.lbs./ 4,745.4 Nm
"UHT" Low Gear	30,000 ft.lbs./40,674.6 Nm
Maximum Operation Pressure	3,000 psi/207 Bar
RPM @ 35 GPM/132.5 LPM: Manual Gearbox	
Max. Recommended Flow Rate: 35 GPM/132.5 LPM (Using Standard A-20 Valve Package)	
High	42
Low	7
Max. Recommended Flow Rate: 65 GPM/246 LPM (Using Optional A-35 Valve Package)	
High	78
Low	13
Handle Length UHT Tong	37 1/4" / 94.6 cm
Handle Length UHT Backup	32" / 81.3 cm
Overall Length UHT Tong	54 5/8" / 138.7 cm
Overall Length UHT Backup	49 3/8" / 125.4 cm
Overall Width w/o Handles / UHT Tong	30 1/2" / 77.5 cm
Overall Width w/o Handles / UHT Tong & UHT Backup	35 1/4" / 89.5 cm
Overall Width w/ Handles	35 1/2" / 90.2 cm
Overall Height UHT Tong	35 7/16" / 90.0 cm
Overall Height w/ UHT Backup & Hanger Bracket	62 9/16" / 158.6 cm
Overall Height w/ UHT Backup & Bail Assembly	65 1/4" / 165.7 cm
Weight UHT Tong (approximate)	2,392 lbs. / 1,087 kg
Weight UHT Backup (approximate)	808 lbs. / 367 kg
Weight UHT Tong w/UHT Backup (approximate)	3,200 lbs. / 1,455 kg
Bottom Hanger (approximate)	225 lbs. / 102 kg
Tong Legs (approximate)	50 lbs. / 23 kg
Combined Weight Tong w/ UHT Backup w/ Hanger & Legs (approximate)	3,475 lbs. / 1,576 kg
Tong Jaw Options [1]	2 1/16" thru 4 1/2" 4 3/4" thru 7 5/8"
1 Backup Jaw Size	2 1/16" thru 7 5/8"
Gripping Range for Dovetail Tong Jaws (under nominal jaw or adapter sizes)	3/8" / 1.5 cm undersize

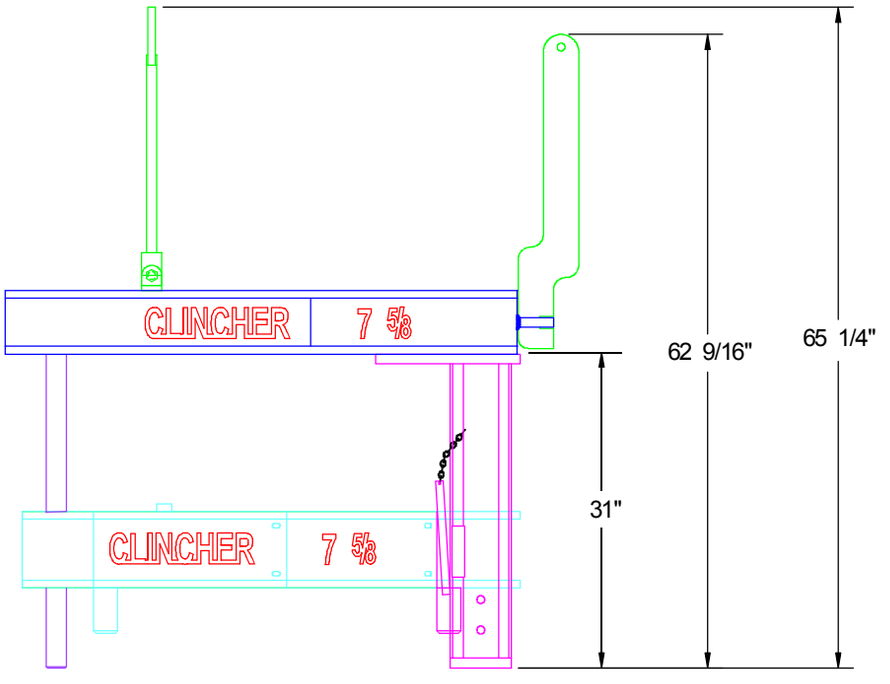
[1] CAUTION: When using Low Friction Jaws, Tongs should be limited to 50% of maximum torque rating.

Operates using Steel Tooth Wrap Around Dies, **GRIT FACE™** Wrap Around Dies and Aluminum Wrap Around Dies

Standard Equipment:
- Door Interlock
- Self Adjusting Brake
- Handles Tong
- 3 Point Lifting Bridle (f/CLE7625 UHT)
- Hanger Bracket (f/CLE7625HT)

Optional Equipment:
- Two Speed Hydraulic Motor
- Hydraulic Cage Plate Brake System
- Electronic Solenoid Dump Valve
- Hydraulic Intensifier for Backup
- Shipping Stand, or Skid
- Varying Outlets for Torque Turns Computer Sending Units





7 5/8" UHT TONG & BACKUP DIMENSIONS

SUPERIOR Manufacturing & Hydraulics
4225 HWY. 90 EAST
BROUSSARD, LA 70518
(318) 837-8847

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		04/07/04

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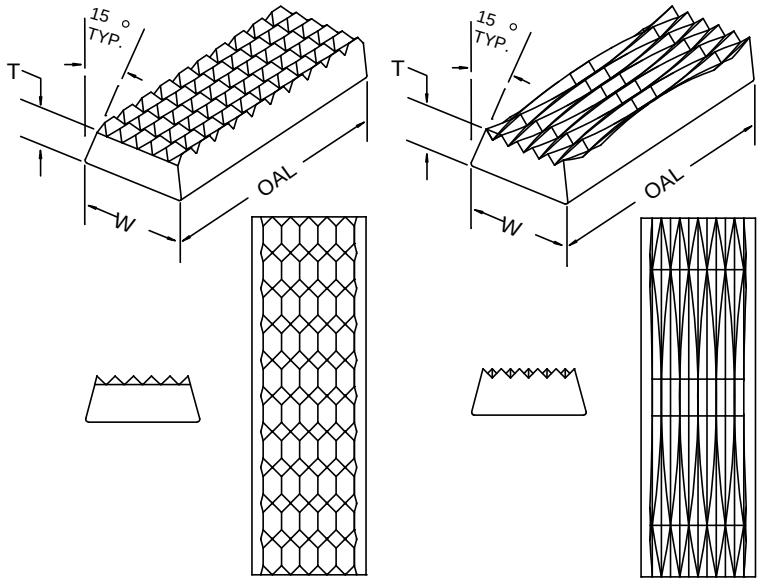
CLINCHER® DIES

Many **CLINCHER®** Tongs and Backups utilize jaws and/or adapters which accept Dovetail Inserts (AKA Pencil Dies or Strip Dies) to effectively grip tubulars. Jaw systems and jaw adapters are also available which accommodate Wrap-Around Fine Tooth Steel Dies, **GRIT FACE™** Dies and Aluminum Dies.

The appropriate jaws, die adapters and dies required for a specific tubular OD are also described in this section of the manual.



STRAIGHT TOOTH **DIAMOND TOOTH**

> ***Note:*** Diamond Tooth Dies are used when a more aggressive bite is required.

Thickness	Width	OAL	P/N Straight Tooth	P/N Diamond Tooth
5/16	5/8	3 1/2	*	*
5/16	5/8	3 7/8	DTI4052	*
5/16	5/8	4 1/2	DTI4002	*
3/8	5/8	3 1/2	DTI4030	*
3/8	5/8	3 7/8	DTI4051	*
3/8	5/8	4 1/2	DTI4001	*

Thickness	Width	OAL	P/N Straight Tooth	P/N Diamond Tooth
17/32	5/8	3 1/2	DTI4031	*
17/32	5/8	3 7/8	DTI4053	*
17/32	5/8	4 1/2	DTI4003	*
5/8	5/8	3 1/2	DTI4032	*
5/8	5/8	3 7/8	DTI4054	*
5/8	5/8	4 1/2	DTI4004	*
11/16	5/8	3 7/8	DTI4055	*
11/16	5/8	4 1/2	DTI4005	*
3/8	1	3 7/8	DTI1505	*
3/8	1 1/4	3 7/8	DTI1614	*
3/8	1 1/4	5	DTI1610	*
7/16	1 1/4	3 7/8	DTI1612	DTI1612D
7/16	1 1/4	5	DTI1617	DTI1617D
1/2	1 1/4	3 7/8	DTI1601	DTI1601D
1/2	1 1/4	5	DTI1602	DTI1602D
9/16	1 1/4	3 7/8	DTI1622	DTI1622D
9/16	1 1/4	5	DTI1623	DTI1623D
5/8	1 1/4	3 7/8	DTI1632	DTI1632D
5/8	1 1/4	5	DTI1633	*
11/16	1 1/4	3 7/8	DTI1642	*
11/16	1 1/4	5	DTI1646	*
3/4	1 1/4	3 7/8	DTI1651	*
3/4	1 1/4	5	DTI1693	*
3/4	1 1/4	5 7/8	DTI1662	DTI1662D
13/16	1 1/4	3 7/8	DTI1661	*
13/16	1 1/4	5	DTI1664	*
7/8	1 1/4	3 7/8	DTI1671	*
7/8	1 1/4	5	DTI1673	*
1	1 1/4	3 7/8	DTI1691	*
1	1 1/4	5	DTI1697	*

* Available upon request.

CLINCHER® WRAP AROUND DIES

CLINCHER® Wrap Around Dies are available in three types:

Fine Toothed Steel Dies:	for low to ultra high torque applications on carbon steel tubulars including tubing, casing, and drill pipe
Smooth Faced Aluminum Dies:	for low to moderate torque applications on fiberglass and corrosion resistant alloy (stainless steel) tubulars
GRIT FACE™ Dies:	for low to high torque applications on fiberglass and corrosion resistant alloy (stainless steel) tubulars where the use of steel dies is prohibited as well as on carbon steel tubulars where reduced marking is desired

CLINCHER® Dies are designed to match the OD of the tubing, casing, coupling, or accessory being made up or broken out. Each die is stamped on the top or side to identify its size. Using Fine Toothed Steel Dies which are slightly larger than the tubular is acceptable provided the difference in diameters is less than 3/32" (0.093"). Aluminum and **GRIT FACE™** Dies should be matched with the specific tubular diameters required. **Note:** The use of improperly sized dies can result in reduced torque capacity, increased pipe marking, and reduced die life.

CAUTION: Do not attempt to grip tubular diameters which are larger than the dies being used. Failure to observe this precaution can result in damage to the tubular or tong jaws.

In emergencies where correct die sizes are unavailable, some operators have successfully used two different sizes of dies to accommodate unusual, nonstandard diameters.

CLINCHER® Wrap Around Dies are manufactured in specific diameters to match standard tubing and casing diameters, API coupling diameters, selected work string connection diameters and certain commonly used premium connection coupling diameters. **CLINCHER®** Wrap Around Dies should not be used on tubulars which are larger than the nominal die size. Steel Toothed Dies can be used on tubulars which are no smaller than 3/32" (0.093") less than the nominal die size. Aluminum and **GRIT FACE™** Dies should be matched with the specific tubular diameters required.

Note: Fine Toothed Steel Dies are normally stocked in our Broussard, Louisiana facility. A partial listing of commonly manufactured sizes is shown below. Aluminum and **GRIT FACE™** Dies are normally made to order although a limited range of sizes and small quantities may be available from stock. Contact SUPERIOR Manufacturing & Hydraulics for information concerning availability of stock and special die sizes.

CLINCHER® WRAP AROUND DIES

DIE Nomenclature for CLE7625 UHT Tong and BUC7625 UHT Backup

BUC4500-xxxx Fine Toothed Steel dies for jaws (2 reqd per tong) (Jaw CJ-76A)
CLE7625-xxxx Fine Toothed Steel dies for jaws (2 reqd per tong)) (Jaw CJ-76B)
BUC7625-xxxx Fine Toothed Steel dies for jaws (2 reqd per tong) (Jaw CJ-76B)
BUC7625-xxxx Fine Toothed Steel dies for jaws (3 reqd per backup)

BUCA4500-xxxx Aluminum dies for jaws (2 reqd per tong) (Jaw CJ-LF-76A)
BUCA7625-xxxx Aluminum dies for jaws (2 reqd per tong) (Jaw CJ-LF-76B)
BUCA7625-xxxx Aluminum dies for jaws (3 reqd per backup)

BB4500-xxxx **GRIT FACE™** dies for jaws (2 reqd per tong) (Jaw CJ-76A or CJ-LF-76A)
BB7625-xxxx **GRIT FACE™** dies for jaws (2 reqd per tong) (Jaw CJ-LF-76B)
BB7625-xxxx **GRIT FACE™** dies for jaws (3 reqd per backup)

ORDERING EXAMPLE: fine toothed steel dies are needed to run 2 7/8" OD tubing
Qty. two (2) BUC4500-2875 dies for jaws
Qty. three (3) BUC7625-2875 dies for jaws
(replace xxxx with size required in inches)

BUC4500-xxxx: Fine Toothed steel dies for UHT Tong

1.660	1.900	2.062	2.162	2.230	2.375	2.600	2.697	2.723	2.750	2.875	3.000	3.062
3.063	3.125	3.230	3.250	3.275	3.297	3.375	3.437	3.500	3.668	3.750	3.830	3.875
3.900	3.965	4.000	4.062	4.125	4.187	4.250						

CLE7625-xxxx: Fine Toothed steel dies for UHT Tong

7.000	7.625

BUC7625-xxxx: Fine Toothed steel dies for UHT Backup

2.375	2.600	2.700	2.707	2.875	3.000	3.062	3.125	3.230	3.240	3.250	3.375	3.400
3.500	3.625	3.668	3.750	3.862	3.875	3.886	3.900	3.910	3.941	4.000	4.025	4.053
4.125	4.250	4.375	4.460	4.500	4.505	4.530	4.625	4.750	4.767	4.862	4.875	4.892
4.900	4.921	4.935	4.961	5.000	5.005	5.125	5.137	5.150	5.215	5.250	5.290	5.313
5.439	5.470	5.500	5.530	5.563	5.570	5.587	5.620	5.695	5.750	5.780	5.826	5.866
5.875	5.931	6.000	6.035	6.050	6.051	6.075	6.100	6.125	6.150	6.250	6.260	6.325
6.350	6.375	6.400	6.500	6.625	6.650	6.750	6.875	7.000	7.020	7.191	7.250	7.350
7.375	7.380	7.390	7.400	7.413	7.500	7.625	7.656	7.681	7.732	7.750	7.790	

CLINCHER® WRAP AROUND DIES

BUCA7625-xxxx: Aluminum dies for UHT Tong & Backup

1.900	2.250	2.375	2.400	2.679	2.707	2.735	2.776	2.875	2.910	3.062	3.125	3.130
3.230	2.240	3.300	3.327	3.375	3.400	3.500	3.523	3.590	3.875	3.900	3.950	4.000
4.050	4.053	4.069	4.138	4.200	4.250	4.313	4.375	4.460	4.500	4.600	4.620	4.862
4.968	5.000	5.012	5.150	5.181	5.250	5.350	5.500	5.550	5.563	5.577	5.590	5.650
5.653	5.700	5.750	5.870	5.890	5.960	6.000	6.025	6.050	6.051	6.071	6.075	6.100
6.125	6.135	6.150	6.153	6.156	6.170	6.200	6.250	6.400	6.500	6.625	6.750	6.940
7.000	7.250	7.390	7.430	7.440	7.579	7.625	7.656	7.675	7.681	7.700	7.750	

BB7625-xxxx: **GRIT FACE™** dies for UHT Tong & Backup

2.375	2.875	3.250	3.500	3.878	3.900	4.000	4.053	4.250	4.500	4.750	4.901	4.950
5.000	5.200	5.500	5.563	5.577	5.736	5.890	6.000	6.045	6.050	6.051	6.075	6.079
6.100	6.150	6.180	6.240	6.248	6.500	6.625	6.750	7.000	7.020	7.191	7.290	7.390
7.413	7.625	7.644	7.681	7.700	7.720	7.731	7.772	7.790	7.852			

Contact SUPERIOR Manufacturing & Hydraulics for information concerning availability of stock and special die sizes.

Gripping range, jaw, adapters and dovetail die inserts for CLINCHER® 7 5/8 UHT Tong and 7 5/8 UHT Backup

Nominal Jaw and Dovetail Die Adapter Size	Jaw Assembly Part Number **Manuf. Before 11/19/07** assembly consists of two jaws c/w pins, rollers, dovetail dies and die retainers	dovetail jaw part number **Manuf. Before 11/19/07**	dovetail die adapter part number 3 dovetail die adapters required to dress backup	nominal jaw size	Jaw gripping range when dressed with1 1/4" wide xx.xx" long dovetail strip dies with thickness of:							
					0.8125 undersized (use this size for emergencies only)	0.75 undersized	0.6875 undersized	0.625 undersized	0.5625 undersized	**0.5 STANDARD**	0.4375 oversized (use this size for emergencies only)	<<*dovetail die thickness* <<*pipe application*
7 5/8 x 2 7/8	CJDT76X02875	Left 76X2875L	BUDT76-xxxxx	2.875	2.250	2.375	2.500	2.625	2.750	**2.875**	3.000	maximum pipe OD for die & jaw
		Rt. 76X2875R			*1.750*	*1.875*	*2.000*	*2.125*	*2.250*	***2.375***	*2.500*	*minimum undersized condition*
7 5/8 x 3 1/8	CJDT76X03125	Left 76X3125L	BUDT76-xxxxx	3.125	2.500	2.625	2.750	2.875	3.000	**3.125**	3.250	maximum pipe OD for die & jaw
		Rt. 76X3125R			*2.000*	*2.125*	*2.250*	*2.375*	*2.500*	***2.625***	*2.750*	*minimum undersized condition*
7 5/8 x 3 3/8	CJDT76X03375	Left 76X3375L	BUDT76-xxxxx	3.375	2.750	2.875	3.000	3.125	3.250	**3.375**	3.500	maximum pipe OD for die & jaw
		Rt. 76X3375R			*2.250*	*2.375*	*2.500*	*2.625*	*2.750*	***2.875***	*3.000*	*minimum undersized condition*
7 5/8 x 3 1/2	CJDT76X03500	Left 76X3500L	BUDT76-03500	3.500	2.875	3.000	3.125	3.250	3.375	**3.500**	3.625	maximum pipe OD for die & jaw
		Rt. 76X3500R			*2.375*	*2.500*	*2.625*	*2.750*	*2.875*	***3.000***	*3.125*	*minimum undersized condition*
7 5/8 x 4	CJDT76X04000	Left 76X4000L	BUDT76-xxxxx	4.000	3.375	3.500	3.625	3.750	3.875	**4.000**	4.125	maximum pipe OD for die & jaw
		Rt. 76X4000R			*2.875*	*3.000*	*3.125*	*3.250*	*3.375*	***3.500***	*3.625*	*minimum undersized condition*
7 5/8 x 4 1/2	CJDT76X04500	Left 76X4500L	BUDT76-04500	4.500	3.875	4.000	4.125	4.250	4.375	**4.500**	4.625	maximum pipe OD for die & jaw
		Rt. 76X4500R			*3.375*	*3.500*	*3.625*	*3.750*	*3.875*	***4.000***	*4.125*	*minimum undersized condition*
7 5/8 x 4 3/4	CJDT76Xxxxxx	Left xxxxx	BUDT76-04750	4.750	4.125	4.250	4.375	4.500	4.625	**4.750**	4.875	maximum pipe OD for die & jaw
		Rt. xxxxx			*3.625*	*3.750*	*3.875*	*4.000*	*4.125*	***4.250***	*4.375*	*minimum undersized condition*
7 5/8 x 5	CJDT76X05000	Left 76X5000L	BUDT76-05000	5.000	4.375	4.500	4.625	4.750	4.875	**5.000**	5.125	maximum pipe OD for die & jaw
		Rt. 76X5000R			*3.875*	*4.000*	*4.125*	*4.250*	*4.375*	***4.500***	*4.625*	*minimum undersized condition*
7 5/8 x 5 1/2	CJDT76X05500	Left 76X5500L	BUDT76-05500	5.500	4.875	5.000	5.125	5.250	5.375	**5.500**	5.625	maximum pipe OD for die & jaw
		Rt. 76X5500R			*4.375*	*4.500*	*4.625*	*4.750*	*4.875*	***5.000***	*5.125*	*minimum undersized condition*
7 5/8 x 6	CJDT76X06000	Left 76X6000L	BUDT76-xxxxx	6.000	5.375	5.500	5.625	5.750	5.875	**6.000**	6.125	maximum pipe OD for die & jaw
		Rt. 76X6000R			*4.875*	*5.000*	*5.125*	*5.250*	*5.375*	***5.500***	*5.625*	*minimum undersized condition*
7 5/8 x 6 5/8	CJDT76X06625	Left 76X6625L	BUDT76-xxxxx	6.625	6.000	6.125	6.250	6.375	6.500	**6.625**	6.750	maximum pipe OD for die & jaw
		Rt. 76X6625R			*5.500*	*5.625*	*5.750*	*5.875*	*6.000*	***6.125***	*6.250*	*minimum undersized condition*
7 5/8 x 7	CJDT76X07000	Left 76X7000L	BUDT76-07000	7.000	6.375	6.500	6.625	6.750	6.875	**7.000**	7.125	maximum pipe OD for die & jaw
		Rt. 76X7000R			*5.875*	*6.000*	*6.125*	*6.250*	*6.375*	***6.500***	*6.625*	*minimum undersized condition*
7 5/8 x 7 5/8	CJDT76X07625	Left 76212-7625L	BUDT76-xxxxx	7.625	7.000	7.125	7.250	7.375	7.500	**7.625**	7.750	maximum pipe OD for die & jaw
		Rt. 76212-7625R			*6.500*	*6.625*	*6.750*	*6.875*	*7.000*	***7.125***	*7.250*	*minimum undersized condition*

Gripping range, jaw, adapters and dovetail die inserts for CLINCHER® 7 5/8 UHT Tong and 7 5/8 UHT Backup

Nominal Jaw and Dovetail Die Adapter Size	Jaw Assembly Part Number **Manuf. Before 11/19/07** assembly consists of two jaws c/w pins, rollers, dovetail dies and die retainers	dovetail jaw part number **Manuf. Before 11/19/07**	dovetail die adapter part number 3 dovetail die adapters required to dress backup	nominal jaw size	Jaw gripping range when dressed with1 1/4" wide xx.xx" long dovetail strip dies with thickness of:							
					0.8125	0.75	0.6875	0.625	0.5625	**0.5**	0.4375	<<*dovetail die thickness*
					undersized (use this size for emergencies only)	undersized	undersized	undersized	undersized	**STANDARD**	oversized (use this size for emergencies only)	<<*pipe application*
***CLINCHER®** part number for 1 1/4" wide x 3 7/8" long straight toothed dovetail die inserts used in dovetail die adapters (2 pcs required per adapter or 6 pcs required per set of 3 adapters>>*					DTI1661	DTI1651	DTI1642	DTI1632	DTI1622	**DTI1601**	DTI1612	
***CLINCHER®** part number for 1 1/4" wide x 3 7/8" long diamond toothed dovetail die inserts used in dovetail die adapters (2 pcs required per adapter or 6 pcs required per set of 3 adapters>>*					upon request	upon request	upon request	DTI1632D	DTI1622D	**DTI1601D**	DTI1612D	
***CLINCHER®** part number for 1 1/4" wide x 5" long straight toothed dovetail die inserts used in dovetail jaw assembly (2 pcs required per jaw or 4 pcs required per jaw assembly>>*					DTI1664	DTI1693	DTI1646	DTI1633	DTI1623	**DTI1602**	DTI1617	
***CLINCHER®** part number for 1 1/4" wide x 5" long diamond toothed dovetail die inserts used in dovetail jaw assembly (2 pcs required per jaw or 4 pcs required per jaw assembly>>*					upon request	upon request	upon request	upon request	DTI1623D	**DTI1602D**	DTI1617D	

Note 1: All CJDT76X series of jaws may be used in CLE7625 UHT tongs.
Note 2: xxxxx indicates this size has not been designed at this time, but is available upon request.

Gripping range, jaw, adapters and dovetail die inserts for CLINCHER® 7 5/8 UHT Tong and 7 5/8 UHT Backup

Nominal Jaw and Dovetail Die Adapter Size	Jaw Assembly Part Number **Manuf. After 11/19/07** assembly consists of two jaws c/w pins, rollers, dovetail dies and die retainers	dovetail jaw part number **Manuf. After 11/19/07**	dovetail die adapter part number 3 dovetail die adapters required to dress backup	nominal jaw size	Jaw gripping range when dressed with1 1/4" wide xx.xx" long dovetail strip dies with thickness of:							
					0.8125	0.75	0.6875	0.625	0.5625	**0.5**	0.4375	*<<dovetail die thickness*
					undersized (use this size for emergencies only)	undersized	undersized	undersized	undersized	**STANDARD**	oversized (use this size for emergencies only)	*<<pipe application*
7 5/8 x 2 3/8	CJDTLF78X02375	Left 78X2375L	BUDT76-xxxxx	2.375	1.750	1.875	2.000	2.125	2.250	**2.375**	2.500	maximum pipe OD for die & jaw
		Rt. 78X2375R			*1.250*	*1.375*	*1.500*	*1.625*	*1.750*	***1.875***	*2.000*	*minimum undersized condition*
7 5/8 x 2 7/8	CJDTLF78X02875	Left 78X2875L	BUDT76-xxxxx	2.875	2.250	2.375	2.500	2.625	2.750	**2.875**	3.000	maximum pipe OD for die & jaw
		Rt. 78X2875R			*1.750*	*1.875*	*2.000*	*2.125*	*2.250*	***2.375***	*2.500*	*minimum undersized condition*
7 5/8 x 3 1/8	CJDTLF78X03125	Left 78X3125L	BUDT76-xxxxx	3.125	2.500	2.625	2.750	2.875	3.000	**3.125**	3.250	maximum pipe OD for die & jaw
		Rt. 78X3125R			*2.000*	*2.125*	*2.250*	*2.375*	*2.500*	***2.625***	*2.750*	*minimum undersized condition*
7 5/8 x 3 3/8	CJDTLF78X03375	Left 78X3375L	BUDT76-xxxxx	3.375	2.750	2.875	3.000	3.125	3.250	**3.375**	3.500	maximum pipe OD for die & jaw
		Rt. 78X3375R			*2.250*	*2.375*	*2.500*	*2.625*	*2.750*	***2.875***	*3.000*	*minimum undersized condition*
7 5/8 x 3 1/2	CJDTLF78X03500	Left 78X3500L	BUDT76-03500	3.500	2.875	3.000	3.125	3.250	3.375	**3.500**	3.625	maximum pipe OD for die & jaw
		Rt. 78X3500R			*2.375*	*2.500*	*2.625*	*2.750*	*2.875*	***3.000***	*3.125*	*minimum undersized condition*
7 5/8 x 4	CJDT78X04000	Left 78X4000L	BUDT76-xxxxx	4.000	3.375	3.500	3.625	3.750	3.875	**4.000**	4.125	maximum pipe OD for die & jaw
		Rt. 78X4000R			*2.875*	*3.000*	*3.125*	*3.250*	*3.375*	***3.500***	*3.625*	*minimum undersized condition*
7 5/8 x 4 1/2	CJDT78X04500	Left 78X4500L	BUDT76-04500	4.500	3.875	4.000	4.125	4.250	4.375	**4.500**	4.625	maximum pipe OD for die & jaw
		Rt. 78X4500R			*3.375*	*3.500*	*3.625*	*3.750*	*3.875*	***4.000***	*4.125*	*minimum undersized condition*
7 5/8 x 4 3/4	CJDT78Xxxxxx	Left xxxxx	BUDT76-04750	4.750	4.125	4.250	4.375	4.500	4.625	**4.750**	4.875	maximum pipe OD for die & jaw
		Rt. xxxxx			*3.625*	*3.750*	*3.875*	*4.000*	*4.125*	***4.250***	*4.375*	*minimum undersized condition*
7 5/8 x 5	CJDT78X05000	Left 78X5000L	BUDT76-05000	5.000	4.375	4.500	4.625	4.750	4.875	**5.000**	5.125	maximum pipe OD for die & jaw
		Rt. 78X5000R			*3.875*	*4.000*	*4.125*	*4.250*	*4.375*	***4.500***	*4.625*	*minimum undersized condition*
7 5/8 x 5 1/2	CJDT78X05500	Left 78X5500L	BUDT76-05500	5.500	4.875	5.000	5.125	5.250	5.375	**5.500**	5.625	maximum pipe OD for die & jaw
		Rt. 78X5500R			*4.375*	*4.500*	*4.625*	*4.750*	*4.875*	***5.000***	*5.125*	*minimum undersized condition*
7 5/8 x 6	CJDT78X06000	Left 78X6000L	BUDT76-xxxxx	6.000	5.375	5.500	5.625	5.750	5.875	**6.000**	6.125	maximum pipe OD for die & jaw
		Rt. 78X6000R			*4.875*	*5.000*	*5.125*	*5.250*	*5.375*	***5.500***	*5.625*	*minimum undersized condition*
7 5/8 x 6 5/8	CJDT76X06625	Left 76X6625L	BUDT76-xxxxx	6.625	6.000	6.125	6.250	6.375	6.500	**6.625**	6.750	maximum pipe OD for die & jaw
		Rt. 76X6625R			*5.500*	*5.625*	*5.750*	*5.875*	*6.000*	***6.125***	*6.250*	*minimum undersized condition*
7 5/8 x 7	CJDT76X07000	Left 76X7000L	BUDT76-07000	7.000	6.375	6.500	6.625	6.750	6.875	**7.000**	7.125	maximum pipe OD for die & jaw
		Rt. 76X7000R			*5.875*	*6.000*	*6.125*	*6.250*	*6.375*	***6.500***	*6.625*	*minimum undersized condition*
7 5/8 x 7 5/8	CJDT76X07625	Left 76212-7625L	BUDT76-xxxxx	7.625	7.000	7.125	7.250	7.375	7.500	**7.625**	7.750	maximum pipe OD for die & jaw
		Rt. 76212-7625R			*6.500*	*6.625*	*6.750*	*6.875*	*7.000*	***7.125***	*7.250*	*minimum undersized condition*

Gripping range, jaw, adapters and dovetail die inserts for CLINCHER® 7 5/8 UHT Tong and 7 5/8 UHT Backup

Nominal Jaw and Dovetail Die Adapter Size	Jaw Assembly Part Number **Manuf. After 11/19/07** assembly consists of two jaws c/w pins, rollers, dovetail dies and die retainers	dovetail jaw part number **Manuf. After 11/19/07**	dovetail die adapter part number 3 dovetail die adapters required to dress backup	nominal jaw size	Jaw gripping range when dressed with1 1/4" wide xx.xx" long dovetail strip dies with thickness of:							
					0.8125	0.75	0.6875	0.625	0.5625	**0.5**	0.4375	<<*dovetail die thickness*
					undersized (use this size for emergencies only)	undersized	undersized	undersized	undersized	**STANDARD**	oversized (use this size for emergencies only)	<<*pipe application*
7 5/8 x 7 5/8	CJDT76X07625	Left 76212-7625L	BUDT76-xxxxx	7.625	7.000	7.125	7.250	7.375	7.500	**7.625**	7.750	maximum pipe OD for die & jaw
		Rt. 76212-7625R			*6.500*	*6.625*	*6.750*	*6.875*	*7.000*	***7.125***	*7.250*	*minimum undersized condition*
***CLINCHER®** part number for 1 1/4" wide x 3 7/8" long straight toothed dovetail die inserts used in dovetail die adapters (2 pcs required per adapter or 6 pcs required per set of 3 adapters>>*					DTI1661	DTI1651	DTI1642	DTI1632	DTI1622	**DTI1601**	DTI1612	
***CLINCHER®** part number for 1 1/4" wide x 3 7/8" long diamond toothed dovetail die inserts used in dovetail die adapters (2 pcs required per adapter or 6 pcs required per set of 3 adapters>>*					upon request	upon request	upon request	DTI1632D	DTI1622D	**DTI1601D**	DTI1612D	
***CLINCHER®** part number for 1 1/4" wide x 5" long straight toothed dovetail die inserts used in dovetail jaw assembly (2 pcs required per jaw or 4 pcs required per jaw assembly>>*					DTI1664	DTI1693	DTI1646	DTI1633	DTI1623	**DTI1602**	DTI1617	
***CLINCHER®** part number for 1 1/4" wide x 5" long diamond toothed dovetail die inserts used in dovetail jaw assembly (2 pcs required per jaw or 4 pcs required per jaw assembly>>*					upon request	upon request	upon request	upon request	DTI1623D	**DTI1602D**	DTI1617D	

Note 1: All CJDT76X series of jaws may be used in CLE7625 UHT tongs.
Note 2: xxxxx indicates this size has not been designed at this time, but is available upon request.

Splined jaws and splined wraparound dies for CLINCHER® 7 5/8 UHT Tong for use on tubing and casing

Nominal wraparound tong jaw and wraparound adapter size	Splined Jaw Assembly Number *assembly consists of two jaws c/w pins, rollers, clips and clip*	splined jaw part number *two pcs reqd per set*	splined jaw roller part number *two pcs reqd per set*	splined jaw pin part number *two pcs reqd per set*	top clip part number for tong jaws *two pcs reqd per set*	bottom clip part number for tong jaws *two pcs reqd per set*	available wraparound die series (two dies are required to dress tong jaws and three dies are required to dress backup for a total of five dies per tool - excludes any dies required for couplings)	
							fine tooth steel dies for tong	**GRIT FACE™** dies for tong
7 5/8 x 4 1/2 - 2 3/8	CJ-76A	76015	76138	76013	BUC4520	BUC4531-S1	BUC4500-nnnnn	
7 5/8 x 7 5/8 - 4 1/2	CJ-76B	76012	76136	76013	76017	76017	BUC7625-nnnnn	BB7625-nnnnn
7 5/8 x 4 1/2 - 2 1/16	CJ-LF-76A	76015	76139 w/ Bushing 58079 (2 per roller)	76013	BUC4520	BUC4531-S1	BUC4500-nnnnn	BB4500-nnnnn
7 5/8 x 7 5/8 - 4 1/2	CJ-LF-76B	76009	76137 w/ Bushing 20DU14 (5 per roller)	76013	76017	76017	BUC7625-nnnnn	BB7625-nnnnn

-nnnnn indicates size being designated by replacing "nnnnn" sequence with size required (in inches) to three decimal places; i.e., 4.500 for 4 1/2" OD casing.

Note: **CLINCHER®** wraparound dies are machined to specific casing, tubing, coupling or accessory diameter. Additional dies must be orderd to match specific coupling diameters associated with accessories or special clearance premium tubular connections.

ASSEMBLY INSTRUCTIONS

Fastener Lubrication and Make Up Torque Requirements

Most bolts, nuts and other threaded components are to be lubricated with Never-Seez or equivalent before assembly. Certain fasteners are to be assembled using permanent or removable Loctite as indicated in the assembly instructions and drawings. All tapered pipe threads are to be treated with a Teflon based pipe dope to assist in makeup and prevent leakage.

CAUTION: Do not use Teflon tape. Improper application of Teflon tape can cause joint failures. Teflon tape can release large particles which can plug small passages in hydraulic equipment.

All standard fasteners used in **CLINCHER®** products are to be GRADE 8 or better. DO NOT SUBSTITUTE lessor grades of fasteners. All fasteners are to be made up to the torque charted below. Failure to properly assemble these fasteners can result in their loss, product malfunction and ultimately result in situations where personnel can be exposed to dangerous situations.

UHT TONG and BACKUP FASTENERS		
Size	***Application***	***Torque***
1/4 - 20 NC	door switch mounting bolts, tong clip bolts	14 ft lbs
3/8 - 16 Set Screws	bearing caps, door switch adj. sleeve	* [1]
3/8 - 16 NC	housing cover, brake bands, backup side plates, tong & backup clip bolts	38 ft lbs
1/2- 13 NC	top secondary bearing cap, cage plate bolts, locking pin, ring gear key, motor mounts, backup halo, leg bolts	93 ft lbs
5/8 - 11 NC	tong plates, bearing caps, idler shaft bolts, cam follower nuts, backup cyl. gland bolts, hanger bolts	180 ft lbs
1 - 12 NF	dumbell roller	* [2]
1 - 8 NC	UHT backup backing bolt	100 ft lbs
1 1/4 - 12 NF	backup bulkhead connector	100 ft lbs
1 1/2 - 12 NF	idler shaft	1,200 ft lbs

*1 Bearing Caps: Coat with removable Loctite, tighten until screw contacts bearing, back off 1 turn. Door Switch Adj. Sleeve: Coat with removable Loctite, tighten by hand until snug.

*2 Tighten until all slack is removed, but dumbell roller is still free to rotate by hand.

LUBRICATION STANDARDS

Bearings and gears must be lubricated to minimize friction, cool, exclude foreign matter and prevent corrosion. **CLINCHER®** recommends using Texaco Marfak MP 2 or equivalent for all grease zerts, roller bearings and bushings. Gears located within the clutch housing or between the tong plates are to be heavily lubricated using PLUSCO 855 or equivalent.

ASSEMBLY INSTRUCTIONS

TONG ASSEMBLY

This section pertains to the physical assembly of the **CLINCHER®** CLE7625 UHT Tong. Section 9 illustrates the individual sub assemblies in more detail. The purpose of this section is to guide the technician in the order of assembly as we would accomplish in the manufacturing process at our plant. Use this section as a guide to help you familiarize yourself with the component parts of the CLE7625 UHT. We have included drawings on the following pages to aid in the assembly. The drawings are laid out in the order in which you would assemble/disassemble the unit.

Order of Assembly:

1. Locate suitable working height. Approximately 6" above your waist. Tong Assembly Stands are available from Superior Manufacturing & Hydraulic, Inc. which are custom made for tong service work.
2. Install Bottom Tong Plate PN 76043, on Assembly Stand.
3. Bolt CLE7625 UHT Tong Mid Body PN 76044 to Bottom Tong Plate PN 76043 with (20) 5/8"-11 x 1 3/4" HHCS PN 1158, (4) 5/8"-11 x 2 1/4" HHCS PN 201 (for Side Handles), (24) 5/8" Lockwashers PN 1151, and (3) 5/8"-11 x 1" SHCS PN 1153.
4. a) Install (3) Cam Followers PN 1968 and (3) Cam Follower Spacers PN 76055-S1 to Bottom Tong Plate with (3) 5/8"-18 Jam Nuts PN 1150, then install (3) 3/16" Drive Zerts PN 1104.
   b) Install (3) Cam Followers PN 1968 and (3) Cam Follower Spacers PN 76055-S1 to Top Tong Plate with (3) 5/8"-18 Jam Nuts PN 1150, then install (3) 3/16" Drive Zerts PN 1104.
5. Press Bearing PN 1903 into Bottom Secondary Bearing Cap PN 55041. Install (2) 3/8"-16 x 1/2" Set Screws PN 1029 (use removable Loctite), and 3/4" NPT Flush Plug PN 1610.
6. Install Bottom Secondary Bearing Cap Assembly onto Bottom Tong Plate PN 76043 using (4) 5/8"-11 x 1 3/4" HHCS PN 1158 with (4) 5/8" Lockwasher PN 1151.
7. Press Bearing PN 1902 into Bottom Pinion Bearing Cap PN 55036. Install (2) 3/8"-16 x 1/2" Set Screws PN 1029 (use removable Loctite), and 1/8" NPT Flush Plug PN 1607.
8. Install Bottom Pinion Bearing Cap Assembly onto Bottom Tong Plate PN 76043 using (4) 5/8"-11 x 1 1/4" HHCS PN 1156 with (4) 5/8" Lockwasher PN 1151.
9. Dumbell Roller Assembly:
   a) Install (2) 1/8" NPT Zert PN 1001 on Dumbell Roller Shaft PN 76025-A.
   b) Install 1"-12 Low Profile Nylock Nut PN 1213 onto Dumbell Roller Shaft PN 76025-A.
   c) Press Bearing PN 1910 (1st Generation) or PN 1910-B (2nd Generation) into end of Dumbell Roller PN 55025-A (1st Generation) or PN 55025-B (2nd Generation).
   d) Fit Spacer PN 55027-B (1st Gen.) or 55027-D (2nd Gen.) into opposite end of Dumbell Roller PN 55025-A (1st Gen.) or 55025-B (2nd Gen.).
   e) Press Bearing PN 1910 (1st Gen.) or PN 1910-B (2nd Gen.) into other end of Dumbell Roller PN 55025-A (1st Gen.) or 55025-B (2nd Gen.).

ASSEMBLY INSTRUCTIONS

f) Install (2) Thrust Washer PN 55024-A onto each end of Dumbell Roller Assembly.

g) Make up 1"-12 LP Nylock Nut PN 1213 on other end of each Dumbell Shaft.

10. Center Idler Gear Assembly:

a) Press Bearing PN 1905 into Idler Gear PN 76049.

b) Install (2) Bearing Shields PN 73027, one on each outer side of Bearing PN 1905 (for tools manufactured earlier only).
Note: Bearing PN 1905 now has (2) Internal Shields so PN 73027 is no longer needed. Install (2) Internal Snap Rings PN 1926 in Idler Gear PN 76049.

c) Press Idler Gear Assembly onto Idler Shaft PN 76051-01.

d) Install External Snap Ring PN 1946 on Idler Shaft.

e) Install Idler Gear and Shaft Assembly into Tong using (3) 5/8"-11 x 2" HHCS PN 1160, with (3) 5/8" Lockwasher PN 1151. Bolt Idler Shaft PN 76051-01 with 1 1/2" Lockwasher PN 1223 and 1 1/2"-12 Nut PN 1222.

f) Install 1/8" NPT Zert PN 1001 at end of Idler Shaft.

11. Outboard Idler Gear without Micro-Cam (PN 76049) Assembly: *(2 assemblies required)*

Note: Earlier Model Tools used (1) Outboard Idler Gear with Micro-Cam (PN 76045), and (1) Outboard Idler Gear without Micro-Cam (PN 76049).

a) Press Bearing PN 1905 into Idler Gear PN 76049.

b) Install (2) Bearing Shields PN 73027, one on each outer side of Bearing PN 1905 (for tools manufactured earlier only).
Note: Bearing PN 1905 now has (2) Internal Shields so PN 73027 is no longer needed. Install (2) Internal Snap Rings PN 1926 in Idler Gear PN 76049.

c) Press Idler Gear Assembly onto Idler Shaft PN 76050-01, or PN 76050 (earlier model tools).

d) Install large end of Shaft Assembly and Idler Gear into Bottom Tong Plate using 1 1/2"-12 Nut PN 1222 and 1 1/2" Lockwasher PN 1223.

e) Install 1/8" NPT Zert PN 1001 at other end of Idler Shaft PN 76050-01.
Note: Outboard Idler Shaft Spacer PN 76097 is placed on Outboard Idler Shaft Assembly when it is bolted onto Top Tong Plate Assembly using 1 1/2" Lockwasher PN 1223 and 1 1/2"-12 Nut PN 1222.

12. Install Ring Gear Key PN 76053 into slot of Ring Gear PN 76057 using 1/2"-13 x 1 1/2" SHCS PN 1106-A. Install Ring Gear PN 76057 into Tong Body making sure teeth in Idler Gears PN 76049 (PN 76045 (1) earlier model tools only) align with teeth in Ring Gear.

13. Install (12) Dumbell Roller Assemblies around Ring Gear PN 76057 making sure holes in Dumbell Roller Assemblies match up to holes in Bottom Tong Plate.

Hint: Temporarily install Dumbell Roller Shafts thru Dumbell Roller Assembly and Bottom Tong Plate to control position.

14. Fill tong body cavity with grease at this time, making sure to pack grease under gear assemblies and completely cover drive train.

ASSEMBLY INSTRUCTIONS

15. Pinion Gear Assembly:
    a) Press Pinion Gear PN 55038-01 (for CLE7625 UHT) or PN 73038 (for CLE7625HT) into Bearing PN 1902 which was previously installed in Bottom Pinion Bearing Cap PN 55036 that is bolted to Bottom Tong Plate PN 76043.

       Note: Earlier Model CLE7625 UHT Tongs used Pinion Gear PN 55038.

    b) Install Low Pinion Gear PN 55047 (for CLE7625 UHT) or 55161-BJ (for CLE7625HT) onto Pinion Gear.

    c) Install Bearing PN 1902 onto Pinion Gear and add Pinion Bearing Bushing PN 55047-1.
16. Install Secondary Input Gear PN 55048 (for CLE7625 UHT) or PN 55048BJ (for CLE7625HT) into Bearing PN 1903, which was previously installed into Bottom Secondary Bearing Cap PN 55041.
17. Install Top Tong Plate PN 76055 onto Mid Body PN 76044 using (21) 5/8"-11 x 1 3/4" HHCS PN 1158, (4) 5/8"-11 x 2 1/4" HHCS PN 201 (for Side Handles), (25) 5/8" Lockwashers PN 1151, (3) 5/8"-11 x 1 1/2" SHCS PN 257 with (3) 5/8" Hi Collar Lockwasher PN 1152, and (3) 5/8"-11 x 1" SHCS PN 1153.
18. Press Bearing PN 1900 into Top Bearing Retainer PN 55066. Install Top Bearing Retainer Assembly onto Secondary Input Gear, then Top Tong Plate using (3) 5/8"-11 x 1 1/4" HHCS PN 1156 and (1) 5/8"-11 x 1 1/4" SHCS PN 256 with (4) 5/8" Lockwasher PN 1151.
19. Insert Dumbell Roller Shafts PN 76025-A with 1"-12 Low Profile Nylock Nut PN 1213 through Bottom Tong Plate PN 76043, through Dumbell Roller Assemblies, and finally through Top Tong Plate PN 76055. After installing Dumbell Roller Shafts through Top Tong Plate, fasten with 1"-12 Low Profile Nylock Nut PN 1213.

    WARNING: Insure Thrust Washers are correctly positioned.
20. High Gear Idler Assembly:
    a) Press (2) Bearing PN 1909 into High Gear Idler PN 55123.

    b) Install Snap Ring PN 1949 into High Gear Idler PN 55123.

    c) Install High Gear Idler Assembly onto High Gear Idler Shaft PN 55124 which is welded to Top Plate.

    d) Install External Snap Ring PN 1950 onto High Gear Idler Shaft PN 55124.
21. Install High Gear PN 55119, High Gear Retainer PN 55122-01, and Ext. Snap Ring PN 1950 on Pinion Gear PN 55038-01 (for CLE7625 UHT) or 73038 (for CLE7625 HT).

    Note: Earlier Model CLE7625 UHT Tongs used Pinion Gear PN 55038 and High Gear Retainer PN 55122 with High Gear fastened with 1/2" Nylock Nut PN 270-A.
22. Install Low Gear Housing Cover PN 14006 onto Low Gear Housing PN 14005 (welded to Top Plate) using (10) 3/8"-16 x 1 1/4" HHCS PN 1048 with (10) 3/8" Lockwasher PN 1027.

    Note: When Gear Housing is not welded to Top Plate, install Housing Cover using (8) 3/8"-16 x 5" HHCS PN 1051 with (8) 3/8" Lockwasher PN 1027 and (2) 3/8"-16 x 4" SHCS PN 243.
23. Secondary Bearing Cap Assembly:
    a) Press Bearing PN 1901 into Top Secondary Bearing Cap PN 55143.

ASSEMBLY INSTRUCTIONS

b) Install (4) 3/8"-16 x 1/2" Set Screw PN 1029 (use removable Loctite) into Top Secondary Bearing Cap PN 55143.

Note: When Encoder is not mounted, install 1" NPT Flush Plug PN 1611 on Bearing Cap PN 55143. For optional Encoder mounting, see figure of Secondary Gear with Encoder.

24. Drive Gear/Detent Assembly:

1st Generation - Install Drive Gear PN 55084 or 55084-01 over Motor Shaft PN 55086-A. Install Steel Ball PN A20-X53-10 and Detent Spring PN A35-A1327-15 into Drive Gear. Apply permanent Loctite to 3/8"-16 x 1/4" Set Screw PN 1028. Install Set Screw in Drive Gear, tighten Set Screw until good detent action is achieved. Proper adjustment is confirmed when resistance is encountered when shifting gear across detent groove on shaft.

2nd Generation - Install Drive Gear PN 55084-02 over Motor Shaft PN 55086-A. Install (2) Spring Plungers PN 1311 into Drive Gear, tighten until good detent action is achieved. Proper adjustment is confirmed when resistance is encountered when shifting gear across detent groove on shaft.

25. Install Polypack Seal PN 12501437 into Seal Retainer PN 55088. Install Seal Retainer Assembly and Motor Spacer PN 55085 onto Motor Shaft PN 55086-A. Install Motor PN 55120 with Motor Shaft Assembly in Shifting Box Weldment PN 55076 using (4) 1/2"-13 x 1 1/4" HHCS PN 1111 and (4) 1/2" Lockwasher PN 1103.

26. Install Drive Gear Assembly and Motor Shaft Bearing Spacer PN 55121-01 (earlier model tools used PN 55121) with Shifting Shaft Assembly PN 45060, Shifting Yoke Assembly PN 45061, Washer PN 45068 and 3/16" x 1" Roll Pin PN 1006 in Shifting Box Weldment.

Note: For Tongs manufactured 11/2000 and after, Shifting Shaft Assembly PN 45060 and Shifting Yoke Assembly PN 45061 are replaced with Shift Assembly PN 45091.

27 Install A-20 Valve Sections with plumbing on Motor PN 55120.

28 Cage Plate Assemblies:

a) Install (13) Cam Follower PN 1968 in Top Cage Plate PN 76011 with (13) 3/16" Drive Zert PN 1104, and (13) 5/8"-18 Jam Nut PN 1150.

b) Install (13) Cam Follower PN 1968 in Bottom Cage Plate PN 76056 with (13) 3/16" Drive Zert PN 1104, and (13) 5/8"-18 Jam Nut PN 1150.

c) Fit Top Cage Plate Cam Followers into Ring Gear groove. Install (4) Cage Plate Spacers PN 76011-A between Top and Bottom Cage Plate Assemblies. Use crane to raise Bottom Cage Plate and fit Bottom Cage Plate Cam Followers into Ring Gear groove. Fasten Cage Plates together using (4) 1/2"-13 x 8 1/2" SHCS PN 1108-M with (4) 1/2" Hi Collar Lockwasher PN 210.

29. Door Assembly and Door Installation:

a) Press (2) Bearing PN 1910 or 1910-B into Top and Bottom Tong Door Plates.

b) Install (2) 1/8" NPT Zert PN 1001 in Door Shaft PN 55022-A, one on each end.

c) Install 1"-12 Low Profile Nylock Nut PN 1213 on Door Shaft PN 55022-A.

d) Mount Tong Door onto Tong.

e) Install (2) Thrust Washer PN 55024-A between the Top and Bottom Door Plates and Tong Body.

ASSEMBLY INSTRUCTIONS

f) Install Tong Door Bushing PN 55125 onto Door Shaft Assembly.

g) Install Door Shaft Assembly through Bottom Door Plate, Bottom Thrust Washer, Bottom Tong Plate, Dumbell Roller Assembly, Top Tong Plate, Top Thrust Washer, and Top Door Plate.

h) Install additional Tong Door Bushing PN 55125 onto Tong Door Shaft PN 55022-A.

i) Install 1"-12 Low Profile Nylock Nut PN 1213 onto Tong Door Shaft PN 55022-A.

j) Install Door Switch Adjustment Sleeve PN 76131 onto top of Door.

Note: Collar is cut with weld bevel and is to be welded to top of Tong Door.

k) Install (2) 3/8"-16 x 1/2" Set Screws PN 1029 (use removable Loctite) on Door Switch Adjustment Sleeve PN 76131.

30. Door Switch Assembly:

a) Install (1) 1/4" Street Ell PN 1449 in Door Switch PN SLV1000-01.

b) Install (1) 1/4" MNPT x 1/4" MJIC 90 Degree PN 1576.

c) Install (1) 1/4" MNPT x 1/4" MJIC 90 Degree PN 1576 into "tank" port of Door Switch PN SLV1000-01.

d) Mount Door Switch PN SLV1000-01 on Door Switch Base PN 76128 with (4) 1/4"-20 x 2 1/4" Bolt PN 110, and (4) 1/4"-20 Nylock Nut PN 212.

e) Mount Assembly to (2) Door Switch Base Mount PN 45067-S7 (Base Mounts should be welded to Top Tong Plate) with (2) 3/8"-16 x 1" Bolt PN 1047 and (2) 3/8" Lockwasher PN 1027.

31. Door Switch Adjustment Instructions:

a) Loosen 3/8"-16 x 1/2" Set Screws PN 1029 to align recess in Door Switch Adjustment Sleeve PN 76131 with Roller on Door Switch PN SLV1000-01. Tighten Set Screws PN 1029.

b) Loosen 1/4"-20 Nylock Nuts PN 212 and slide Door Switch PN SLV1000-01 forward until fully seated in recess in Door Switch Adjustment Sleeve PN 76131. Tighten Nylock Nuts PN 212.

c) Connect Tong to Power Unit and actuate motor while in low gear. Verify Ring Gear stops rotating when Tong Door is opened.

32. Brake Band Assembly and Installation:

a) Install Large Brake Band Assembly PN 76061A and Small Brake Band Assembly PN 76061B onto Top Tong Plate using 3/8"-16 x 3" SHCS PN 1044, inserting through Brake Band Lug Weldment PN 76126 and Gusset welded to Brake Band Ring, with 3/8"-16 Nylock Nut PN 213.

b) Install Large Brake Band Assembly PN 76061A and Small Brake Band Assembly PN 76061B onto Bottom Tong Plate using 3/8"-16 x 3" SHCS PN 1044, inserting through Brake Band Lug Weldment PN 76126 and Gusset welded to Brake Band Ring, with 3/8"-16 Nylock Nut PN 213.

OPERATIONAL INSTRUCTIONS

SUSPENSION

A) Tong should be hung by a 7/8" IWRC minimum O.D. wire cable with a 31 ton minimum breaking strength. It should be hung as close to the center of the drill rotary without interfering with operation of drill string and lifting equipment. It is recommended the operator make use of the **CLINCHER®** Lift Cylinder. The **CLINCHER®** Lift Cylinder incorporates a hydraulic cylinder and manual lift spring. The hydraulic cylinder portion is used to assist in the raising and lowering of the tong and backup while the spring allows for movement during make-up and break-out.

   WARNING: The suspension system must allow the tong to easily move down a distance equivalent to the thread make-up length. If significant resistance is encountered the suspension system may be subject to load which could cause its failure, damage equipment, or expose personnel to severe or fatal hazards.

B) Assure that tong is suspended in level manner. Both tong and the backup must be level at the point they contact the tubular. Using adjustment screws and slots in rigid hanger assembly, adjust tong so that it hangs level on horizontal axis and is parallel to tubular on vertical axis.

C) Make certain that floor space is adequate to maneuver tong on and off pipe. The space must be clear of obstructions to allow safe and unrestricted operation.

D) Attach 1" IWRC minimum wire cable with a 51.7 ton minimum breaking strength or better, as a tong back up line at 90 degree angle to tong and at same level to insure proper readout of torque indicator. You should always have snubbing line attached. Use of a integral hydraulic backup is safer than manual backup, but operators should maintain additional safety of snubbing line to prevent injury in case of hydraulic failure or the failure of operator to have backup properly applied to tubular. This equipment generates extreme torque and should be used with caution.

Jaw and Die Installation

A) Be sure all power to unit is off and power unit itself is shut down.

B) Determine O.D. of tubular to be made-up or broken-out. Use proper dies to bite O.D. of tubular and insert as follows: Remove sliding head jaws (2) from cage plate pockets. Insert one jaw with proper dies into pocket assuring the jaw roller pin faces upward. Repeat procedure for other side.

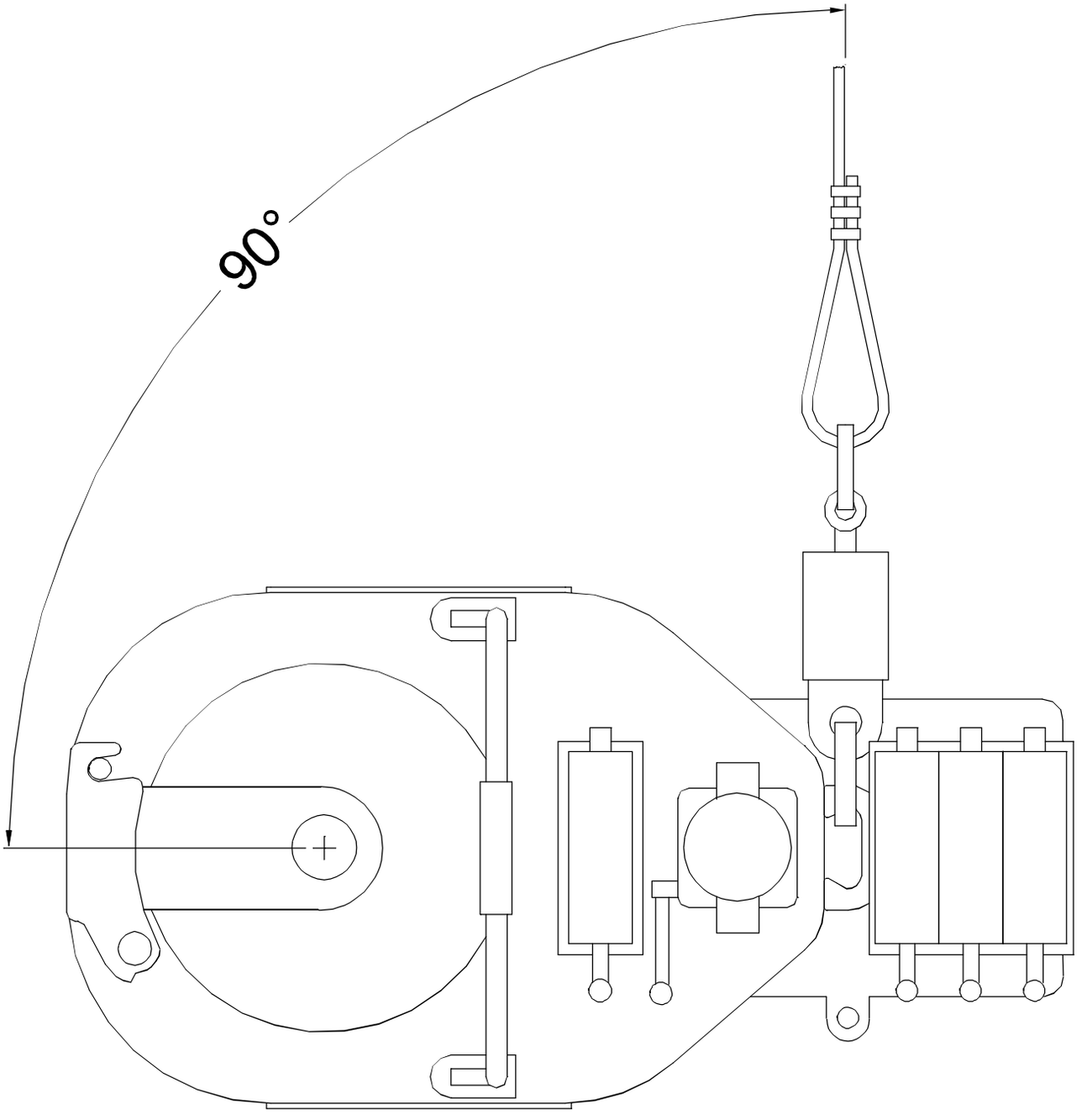
OPERATIONAL INSTRUCTIONS

Hydraulic Lines

A) Be sure all power to unit is off and power unit itself is shut down.

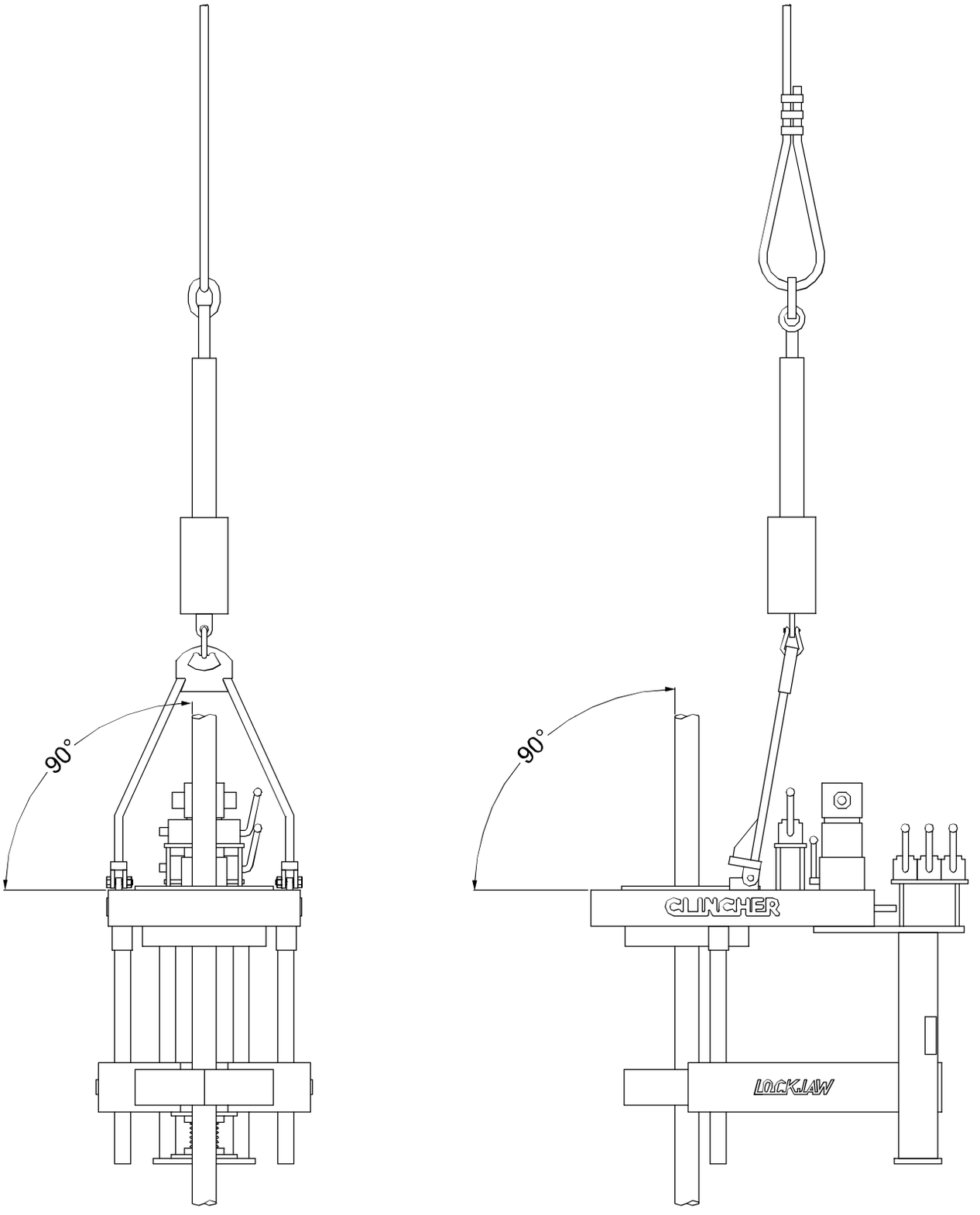
B) Always inspect hoses prior to installation for abrasions, kinks, and other visible damage.

C) Install hydraulic supply hose and hydraulic return hose between tong and hydraulic power unit. Be advised that the standard installation on **CLINCHER®** tong calls for 1" Hydraulic Supply hose and 1-1/4" Hydraulic Return hose. The differing hoses eliminates the possibility attaching the wrong hose to the wrong outlet while at the same time reducing back pressure in your hydraulic system.



TYPICAL SNUB LINE INSTALLATION

NOTE: SNUB LINE IS PERPENDICULAR
TO AXIS OF TONG



TYPICAL TONG INSTALLATION

NOTE: TONG IS PERPENDICULAR
TO TUBING

OPERATIONAL INSTRUCTIONS

Tong Operation

A. Insure proper dies are installed. Connect hydraulic hoses, verify reservoir is full of hydraulic fluid and insure suction valve is open.

B. Open bypass valve to hydraulic system, then check to make sure all hose connections are secure and hydraulic system is free of leaks.

C. Be certain door is completely closed before operation to insure safe operation. The **CLINCHER®** CLE7625 UHT is equipped with a door switch, which prevents operation of the tong when door is even partially open.

D. Use power unit to start up procedure as outlined in your owners manual supplied by the manufacturer.

E. In the event hoses are not tightened securely, possible failures to hydraulic system can occur.

   1) If pressure supply hoses are restricted or flow is blocked, pressure will increase in the hydraulic power unit, resulting in increased RPM in the power unit.

   2) If return line hoses are restricted or flow is blocked, pressure will increase in the hydraulic power unit and the hydraulic system to the tong itself, resulting in the tong motor increasing to maximum pressure and possible motor seal failure.

F. After completion of A through E restart the power unit and allow engine to idle for approximately 10 minutes. Slowly close bypass valve to allow circulation of hydraulic oil through tong and hoses. Place shifting lever into low and rotate several times. Repeat in reverse. If correct jaw-die combination is installed, the unit is now ready to run pipe.

G. Adjust height of tong to proper height, using the control valve located all the way to the right of rear valve bank assembly.

H. Stand in the normal operators position, insert the locking pin into the rear cage plate hole (on operators side). This pin allows ring gear to rotate clockwise (make-up) and engage the cam to close jaws on pipe.

I. Swing tong and backup onto tubing, making sure to align tubing on rear jaw of backup. Close backup jaws by pushing middle control lever forward. The design of the **CLINCHER®** Integral Backup centers pipe in the backup and tong. Close tong door.

J. Rotate ring gear clockwise by pushing motor control lever on the front valve bank assembly forward until jaws lock on pipe and continue to rotate until desired amount or torque is applied.

K. After correct amount of torque specific to that connection has been applied, release tong jaws by pulling back on motor control lever until jaws release and throat in cage plate is aligned with door opening. Open door.

L. Release backup by pulling back on right control lever on rear valve bank assembly until backup jaws are completely retracted.

M. High and low gear is adjusted by use of shifting lever PN 45060 (1st Generation Tongs) or Shift Assembly PN 45091 (2nd Generation Tongs), located to the left side of the shifting housing. With the lever in the upwards position the tong is in high gear. With the shifting lever in the downward position, the tong is in low gear.

MAINTENANCE INSTRUCTIONS

CLINCHER® recommends that owners of **CLINCHER®** Hydraulic Power Tongs, Backups, **CHROMEMASTER™**s and accessories adapt a regularly scheduled maintenance program. Implementation of this type of program offers several benefits. First you increase the life of your equipment, secondly, you may find a problem before it escalates to a costly repair or down time on the job, and most importantly, prevent injury to operating personnel.

A major inspection (described at the end of this section) should be carried out if equipment is suspected to have been damaged during transit or is to be mobilized to a remote location where maintenance operations are difficult to carry out.

Routine Maintenance

Cleaning - Upon return from each and every job:

A) Pre-wash unit to remove majority of dirt and grease build up as to allow removal of dies, and inspection of overall condition of unit.

B) Remove and inspect dies from tong and backup. Note any missing or damaged die retainers, and or die retainer bolts.

C) Remove side jaws from tong and inspect side jaw for missing or broken parts, damaged splines, broken ears (locking hooks on front portion of side jaws.)

D) Clean and inspect side jaws, jaw pins, jaw rollers for damage or excessive wear (cracks, breakage, and uneven wear patterns). Reassemble jaw sections replacing any damaged parts. Lubricate pins, and rollers and reinstall in tong.

E) Clean and inspect backup operating cylinder. Insure sline area is free from damage and any rust or dirt is removed. Replace any missing or damaged die retainer clips and die retainer bolts.

F) Inspect all hoses for wear, replace as necessary.

G) Inspect hanger assembly to assure all parts are returned and in operating condition. (*i.e.* H-Plates, spring, leg springs, leg spring caps and pins.)

H) Replace jaw, pins and rollers in tong.

I) Lubricate tong's cam followers (upper and lower), dumbell roller shafts (upper and lower zerts), door shaft, center idler gear shaft (lower zert), outboard idler gear shafts (2, upper zerts), pinion gear, and secondary gear assemblies (Pinion gear and secondary gear assemblies are installed with sealed bearings. There is no provisions to grease these bearings. However, if replaced by non-sealed bearings, the 1/8" N.P.T. flush plugs should be replaced with zerts PN 1001 and both gear assemblies should be added to the regular lubrication schedule.), low gear housing, and shift housing (2 zerts each), and re-pack tong body cavity. Lubricate zerts in backup plates and pins.

MAINTENANCE INSTRUCTIONS

J) Install dies of a size needed for testing purposes, and attach hydraulic power unit to tong. Before energizing power unit make certain no one is working on tong or backup and all tools and parts are removed from the tong and backup.

K) Insert test mandrel of the exact same size as the dies which are installed in the tong and backup. **Caution:** Testing the function of the backup without the proper size dies installed and/or without the proper sized mandrel in place, you risk serious damage to the backup cylinder.

L) After power unit has reached operating R.P.M. and temperature, operate the backup control valve and close backup around test mandrel using sufficient flow and pressure to clamp mandrel and maintain pressure to backup. (Recommended operating pressure of 2,500 psi) Backup pressure gauge should match system operating pressure. After release of control valve you may experience a slight drop in backup pressure (up to 300 psi) this is normal. If backup pressure drops more than 300 psi within 2 minutes, you may be experiencing a hydraulic leak.

M) While maintaining pressure on backup visually inspect hoses, stainless steel lines, fittings, etc., for seepage of hydraulic fluid. Repair or replace parts causing leaks. If you see no visible external leaks and your backup is still losing pressure, there may be an internal leak in the operating cylinder or load holding valve allowing fluid to bypass the piston. It is recommended that the backup be returned to the manufacturer for repair.

N) If at this time your backup is functioning correctly, open and close unit several time to insure consistent operation.

O) With the proper dies installed in the tong and backup, and test mandrel locked in the backup, place reversing pin into the make-up position, set tong into low gear and operate tong through several cycles of locking, biting and torquing to required torque. Change reversing pin to break-out position and repeat. Repeat same procedure in high gear.
Note: Torque developed in high gear is considerably less than torque developed in low gear.

P) Test door interlock system by opening door slightly with tong rotating. (Remove test mandrel for this procedure.) The tongs rotation should stop. If tong rotation fails to stop, close door, cease rotation, deactivate power unit, and inspect door interlock switch for damage. Insure that adjustment collar is oriented to allow wheel of door switch to fit into recess on collar.
Warning: If door switch system is not functioning properly tong must not be used.

Q) Re-inspect tong and backup hydraulic system for leaks.

R) If at this time the unit is functioning as intended, replace all covers and grease splines in tong and backup (side jaws and back jaws), tape or grease spools on control valves (to prevent paint from adhering to polished spool surface), prime and paint unit for storage.

MAINTENANCE INSTRUCTIONS

Recommended Lubrication Schedule Performed After Completion of Each Job

Hydraulic Tong

a) Cam followers: upper and lower (all)
b) Dumbell roller shafts: upper and lower (all)
c) Door shaft: upper and lower
d) Center Idler shaft
e) Outboard Idler shafts (2)
f) Low gear housing (2 zerts)
g) Shift housing (2 zerts)
h) Re-pack tong cavity
i) Pinion and secondary gear shafts (if sealed bearings have been replaced by non-sealed bearings)
j) Jaw rollers and pins: Remove jaw pins and rollers, clean and lubricate with gear grease
k) Inspect hydraulic fluid for foreign material and contaminant. Filter or replace. Your must filter or replace entire system including power unit tank and lines along with tong to insure all contaminants are removed.

Annual Major Maintenance

Inspection and repair

Routine preventative maintenance will significantly extend the operating life of your equipment, reduce operating cost and avoid downtime. **CLINCHER®** recommends a program of frequent routine inspection, and if equipment is suspected to have been damaged during transit or is to be mobilized to a remote location where maintenance operations are difficult to carry out, perform the following:

A) Visually inspect components on power tong or backup which could possibly have been damaged either during operation or transit. *i.e.* Damage to hanger assembly, hydraulic backup, mounting legs, or hydraulic valve assembly.

B) Check test date. Ensure that a load test and inspection was carried out within the last 9 months.

C) Check ring gear. Check for any signs of damage or wear.

D) Remove motor and valve assembly from the tong body.

E) Check motor seal. Apply hydraulic power, run motor and visually check motor seal for any signs of leakage.

F) Check drive gear, high and low pinion gears. Check for excessive sign of wear on motor gear.

G) Check condition of control valve spools. Activate valves and check for any sign of wear, pitting, or scoring of the chrome surface of spools. If spool is damaged in any way, the complete section must be changed out. Spools are not interchangeable.

MAINTENANCE INSTRUCTIONS

H) Check gear selector and shaft. Visually inspect the shifting shaft for alignment and straightness.

I) Check Hi/Low Gear assembly. Visually inspect high and low clutch and gears for any sign of chipped, broken, or worn teeth.

J) Check dumbell rollers, shafts and bushings. Check for excess movement on either bearings, bushings, shafts or dumbells.

K) Check idler gears and center pinion shaft gears and bearings. Check that there are no signs of worn, chipped, or broken teeth on idler and center pinion shaft gears.

L) Check door bearings. Visually check excess movement on bearings at door assembly. If excess movement is found door must be removed making careful note of bearing washers positions for reassembly.

M) Check door switch system. Visually check that door switch valve has sufficient strength to hold door in closed position. If this is not the case, then repairs are required.

N) Check door safety device. Functionally check tong door safety switch. Engage low gear, open tong door and push rotor control lever forward as if to rotate rotor. If safety device is operational then the rotor will not rotate.

O) Check lifting hanger test date. Check lifting hanger for damage. Ensure that a load test and inspection was carried out within the last 9 months.

P) Check condition of all hydraulic hoses and fittings. Visually inspect all hydraulic hoses fitted to the tong and in the backup for any signs of leaks, cuts, or wear.

Q) Reinstall all parts which were removed for inspection and/or damage. Connect to hydraulic power supply and function test operation of tong in high, low, forward, and reverse. Torque test utilizing appropriate dies and test mandrel. Test operation of lift cylinder.

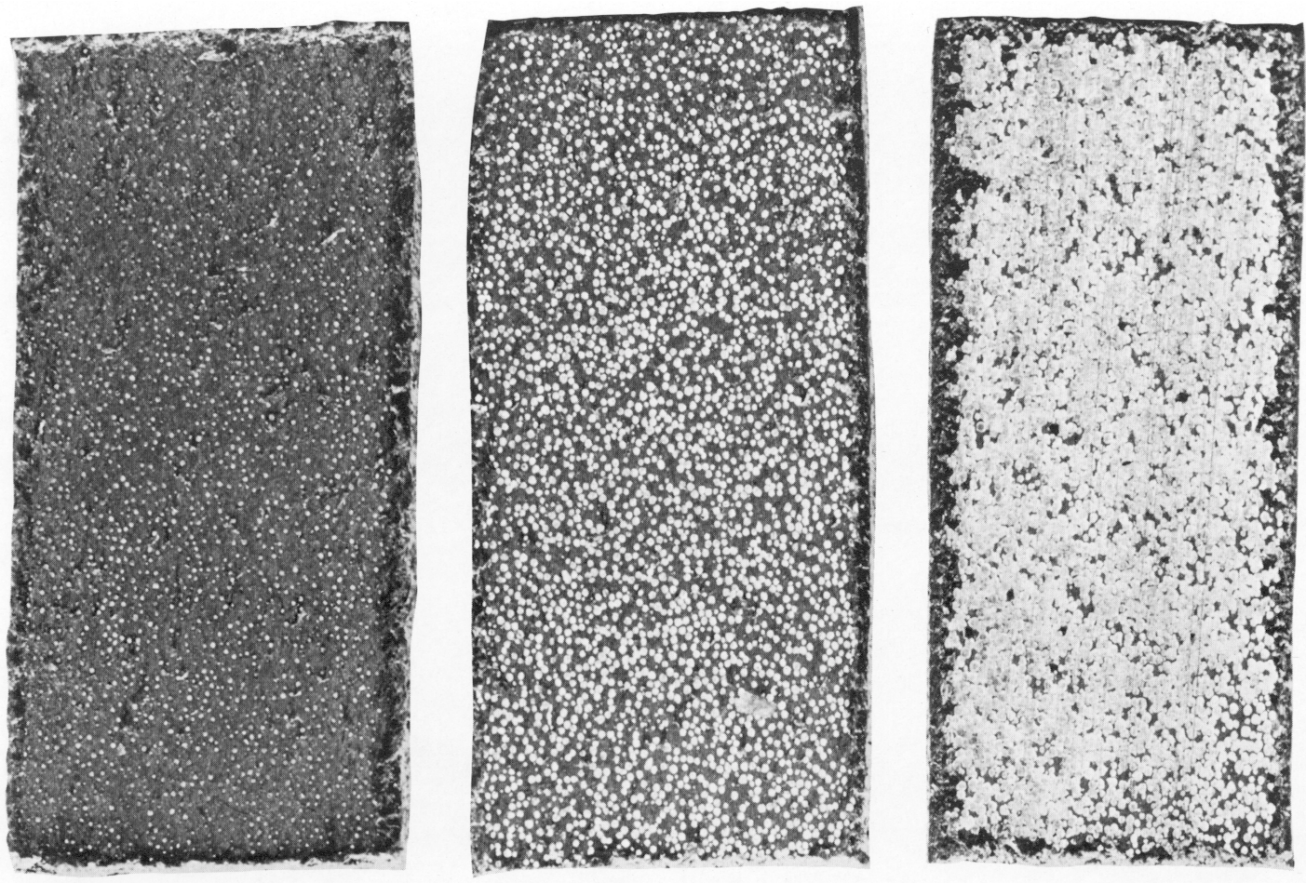
R) Inspect power unit system according to manufactures specifications.

S) Lubricate tong and backup according to maintenance schedule preceding this section.

T) Paint, remembering to mask off surfaces not intending to paint with grease or masking tape.

U) Complete dated inspection report giving details of all duties performed along with complete list of items replaced.

DU® BEARING DRY WEAR PROCESS



1. 2. 3.

1. Running-in completed. Low wear rate starts when up to 10% of the bronze is exposed.

2. Typical surface appearance when DU® bearing approaches its half life with 40% to 50% of the bronze exposed.

3. Bronze is beginning to smear near the end of DU's useful life as a dry bearing. Over 75% of the bronze is visible at the surface.

For additional information about DU bearings, please contact Garlock Bearings Inc,
700 Mid Atlantic Parkway, Thorofare, New Jersey 08086. **(609) 848-3200** FAX: (609) 848-5115

TROUBLESHOOTING

HYDRAULIC SYSTEM

Hydraulic Pump Making Excessive Noise:

	Problem	Solution
A)	Restricted or clogged intake line	Clean line, check for contamination.
B)	Contaminated fluid	Flush system, change fluid.
C)	Restricted vent	Clean or replace air vent.
D)	Air in fluid	Check for leaks and be certain fluid suction in tank is well below hydraulic fluid in reservoir.
E)	Damaged or worn parts	Repair or replace damaged parts, check fluid for contamination.
F)	Excessive RPM	Check PTO, gears, and recommended speed to assure proper pump is installed for operation.
G)	Increased friction	Make sure pump has been assembled using correct torque values.
H)	Damaged or worn relief valve.	Replace relief valve.
I)	Damaged or worn check valve.	Replace check valve.
J)	Restricted discharge	Check to make sure relief valve is set to proper pressure.
K)	Valve system restricted	Inspect and repair or replace defective parts, check system for contamination.

Excessive Wear to Hydraulic Components:

	Problem	Solution
A)	Fluid contamination	Flush fluid system, replace with new fluid.
B)	Components misaligned	Inspect and realign.
C)	High operating pressures	Gauge and set to proper pressure.
D)	Exhausted fluid (depletion of additives)	Flush fluid system, replace with new fluid.
E)	Air in fluid	Check for leaks, and be certain fluid suction in tank is well below hydraulic fluid in reservoir.
F)	Shortened bearing life	Check alignment, insure proper lubrication to non-sealed bearings.

TROUBLESHOOTING

HYDRAULIC TONG SYSTEM

Slow Tong Speed:

	Problem	Solution
A)	Restricted supply line	Clear supply line and check intake on reservoir.
B)	Low fluid level	Add fluid to proper volume.
C)	Air leak	Locate and repair leak.
D)	Pump speed insufficient	Assure proper pump speed for application.
E)	Damaged or worn equipment	Isolate pump and check pressure to determine whether motor or pump is defective. Repair or replace defective part.
F)	Pump not primed	Check fluid viscosity and restrictions of intake line. Replace fluid if inadequate for operating temperature.
G)	Low or no flow from supply line	Check to assure couplings are securely fastened.
H)	Hydraulic bypass valve malfunction	Inspect. Adjust unloading pressure. Replace or repair as necessary.

Insufficient Torque:

	Problem	Solution
A)	Door switch malfunctioning	Check to make sure door is completely closed. Inspect door switch and dump valve. Replace or repair door switch and/or dump valve.
B)	Relief valve malfunctioning	Relief set too low, broken valve spring, contamination or defective seals.
C)	Damaged or worn pump parts	Inspect, repair, or replace.
D)	Slow pump speed	Assure proper pump speed for application.
E)	Improper system fluid	Check fluid viscosity and replace fluid if inadequate for operating temperature.
F)	Directional control valve set improperly	Check relief and directional control valve. Neutral should return slightly to reservoir.

TROUBLESHOOTING

HYDRAULIC TONG SYSTEM

Insufficient Torque:

	Problem	Solution
G)	Damage tong motor	Inspect, repair, or replace.
H)	Restriction of supply line, excessive back pressure	Check to assure couplings are securely fastened.
I)	Defective gauge or load cell	Inspect, repair, or replace. Assure unit has been calibrated to proper arm length. NOTE: When using **CLINCHER®** integral backup system, it is the length of backup arm, NOT the tong arm length.

Difficulty Shifting Gears:

	Problem	Solution
A)	Broken key in shifting yoke	Inspect and replace key stock in shifting yoke.
B)	Worn or damaged shifting yoke pins	Inspect and replace broken or worn pins.
C)	Insufficient lubrication	Pump grease into both zerts located on shift housing.
D)	Detent ball bearing spring set too tight	Inspect and relieve pressure by adjusting set screw on shifting gear PN 55084.

Failure to Grip Tubulars:

	Problem	Solution
A)	Jaws move out from neutral, but fail to penetrate pipe. Tong not perpendicular.	Inspect die size and replace with correct dies for pipe. Wrong size dies for tubulars. Assure suspension of tong is perpendicular to tubulars. Adjust hanger as necessary.
B)	Jaws fail to move out of neutral. Brake band not tight enough, faulty cam followers, rust debris or damage to jaws.	Inspect for excessive wear on brake band. Inspect and replace defective cam followers. Remove rust and debris from jaws, and jaw pockets. Inspect jaw rollers and pins for wear, flats, and lubrication. Repair, replace, and lubricate as needed.

TROUBLESHOOTING

HYDRAULIC TONG SYSTEM

Failure to Grip Tubulars:

	Problem	Solution
C)	Tong will not release from tubular. Brake band not tight enough, defective cam followers in cage plate, insufficient lubrication to jaw pin and roller.	Inspect for excessive wear on brake band. Inspect and replace defective cam followers. Remove rust and debris from jaws, and jaw pockets. Inspect jaw rollers and pins for wear, flats, and lubrication. Repair, replace, and lubricate as needed.
D)	Tong motor runs but ring gear does not rotate. Broken gears or defective shift in hydraulic tongs system.	Inspect and replace defective gears. Inspect and repair or replace defective shifting parts.
E)	Tong binds under light load. Worn or damaged cam followers, dumbell roller bearing, or idler bearing.	Inspect and replace defective parts.
F)	Ring gear rotates while control lever is in neutral.	Replace control valve.
G)	Shift will not stay in set position. Lost detent ball or spring.	Replace detent ball and spring.
H)	Hydraulic fluid leaking from motor. Damaged or worn motor shaft seal.	Replace motor shaft seal.

HYDRAULIC BACKUP SYSTEM

Failure to hold tubulars:

	Problem	Solution
A)	Incorrect die for size tubular	Check pipe OD and match die size to pipe OD.
B)	Dies have material compacted in tooth area; worn teeth.	Clean dies with wire brush and inspect. Replace with new dies if necessary.
C)	Power unit pressure set incorrectly	Inspect relief valve on power unit to make sure enough system pressure is being delivered to backup.
D)	Counter balance valve not holding pressure	Remove side plates on backup. Bench test and replace the defective counter balance valve.
E)	Internal leakage in backup cylinder	Disconnect lines and bench test cylinder. Repair or replace as necessary.
F)	Jaws will not retract. Counter balance valve is stuck.	Replace counter balance valve.
G)	External leakage of cylinder	Repair or replace cylinder.
H)	Control valve set to neutral, but jaws extend.	Inspect control valve for damage and/or incorrect spool. Repair or replace as necessary.

SECTION 7 7 5/8" UHT TONG & BACKUP PARTS LISTS

RECOMMENDED TONG SPARE PARTS LIST

Part Number	***Quantity***	***Description***
12501437	1	Seal for Rineer Motor
76013	2	Standard, Low Friction & Dovetail Jaw Pins
76138	2	Standard Jaw Rollers (2 3/8" - 4 1/2")
76136	2	Standard Jaw Rollers (4 1/2" - 7 5/8")
76139	2	Low Friction Jaw Rollers (2 1/16" - 4 1/2")
58079	4	Garlock Bushings (for 76139)
76137	2	Low Friction Jaw Rollers (2 3/8" - 7 5/8")
20DU14	10	Garlock Bushings (for 76137)
76014	2	Dovetail Jaw Rollers
1001	8	1/8 NPT Zerts
SLV1000-01	1	Door Switch Assembly
45061 or 45072	1	Shifting Yoke (for tools mfg. before 11/2000) Shifting Yoke (for tools mfg. 11/2000 & after)
76061A	1	Large Brake Band Assy.
76061B	1	Small Brake Band Assy.
BUC5520 or CM7656-01	2	Die Clip (UHT Backup 1st Generation) Die Clip (UHT Backup 2nd Generation)
VA20-MRV-1	1	A-20 Relief Cartridge

ACCESSORIES AND OPTIONS

Several different accessory items are available for the **CLINCHER®** Tong and Backup to allow them to be customized to provide a system most appropriate for the inducer's application.

CLE7625 UHT Tong Accessories

Compression Load Cell and Torque Gauge	directly measures applied torque
Tension Load Cell and Torque Gauge	directly measures applied torque
Solenoid Operated Module for Dump Valve	allows computer to limit torque applied
Adapter for Turns Proximity Switch	allows computer to sense rotation
Bail Assembly	alternative lifting system
Lift Cylinder with Integral Spring Hanger	controls vertical position
TSP-80 Tong Speed Control	allows slow speed rotation with full torque
2 Speed Motors	
Alternate Motor Displacements	

BUC7625 Backup Accessories

Backup Handles	simplifies manipulation
Shipping Skids and Cages	simplify handling, transport and help guard against damage

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- Continued -

SECTION 9 UHT TONG ILLUSTRATIONS

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7 5/8" UHT TONG DOVETAIL JAW SET ASSEMBLY *(Assy. No. CJDT78X)*
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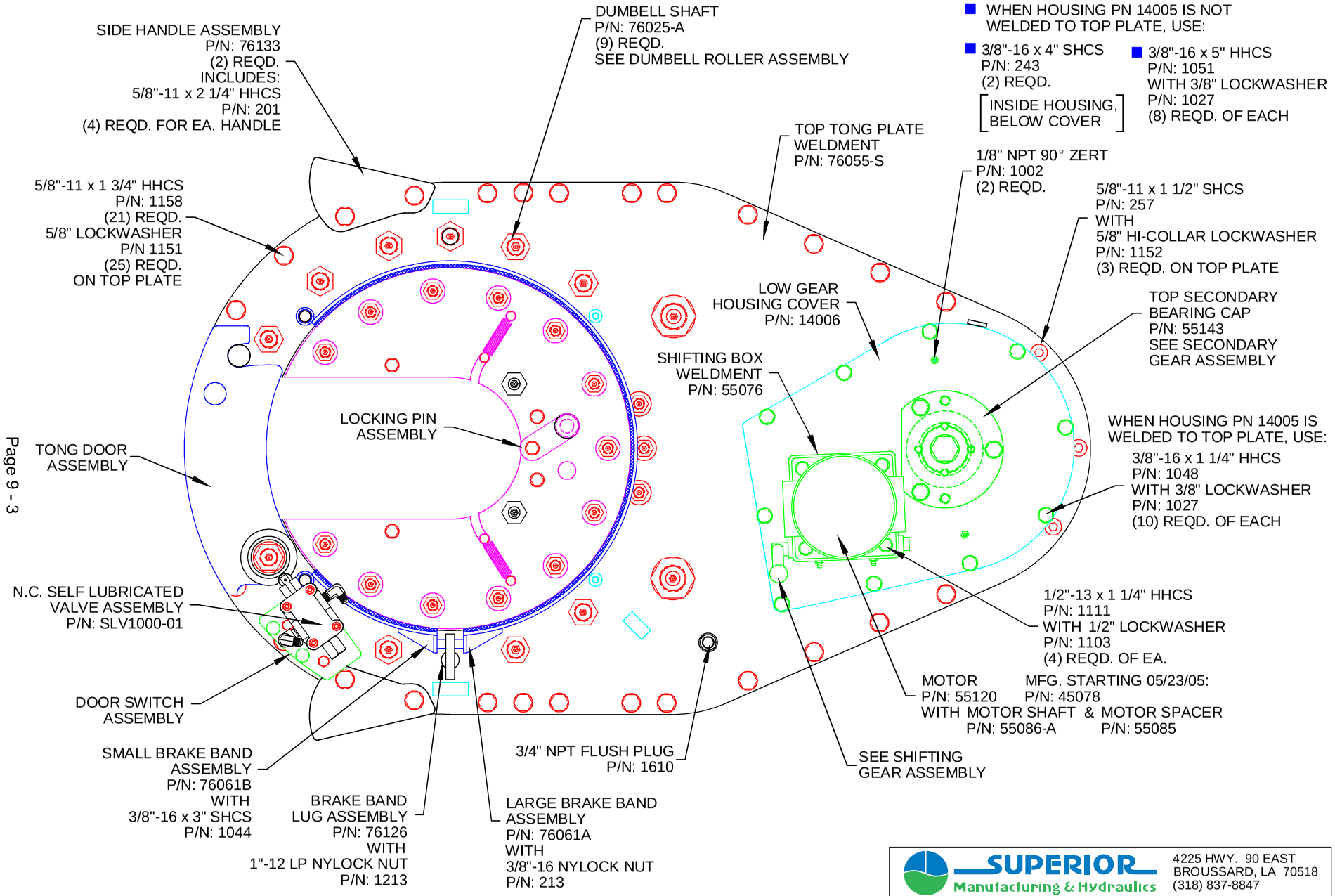

TOP VIEW

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BROUSSARD, LA 70518
(318) 837-8847

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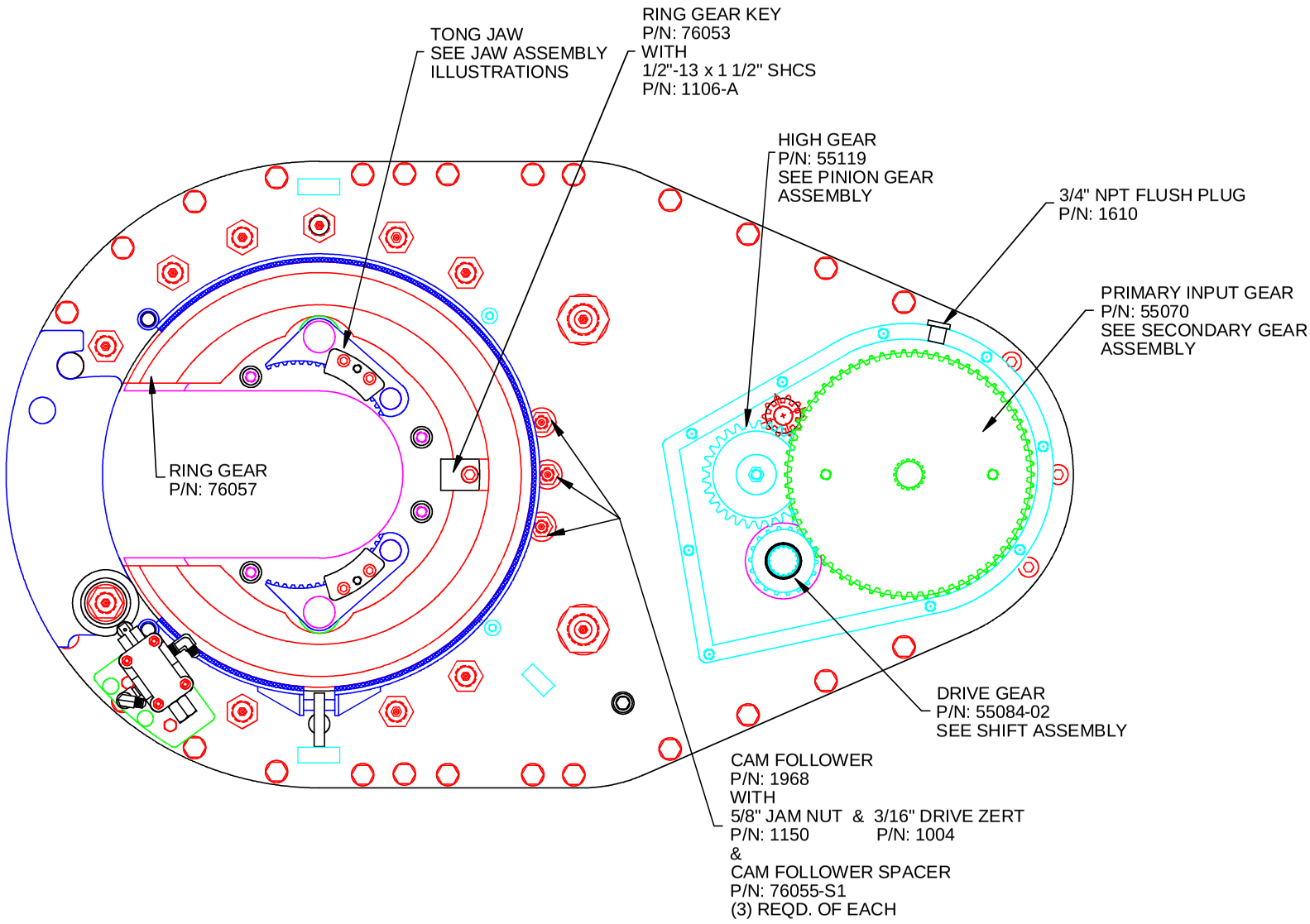

TOP VIEW

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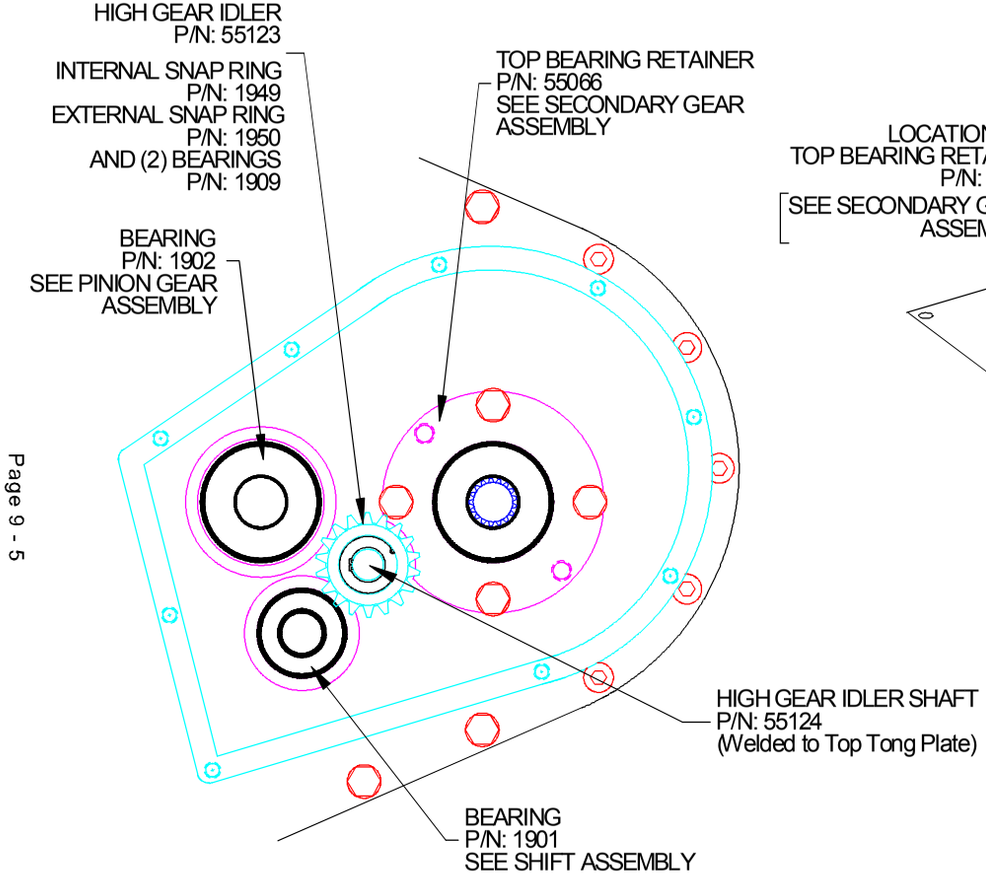
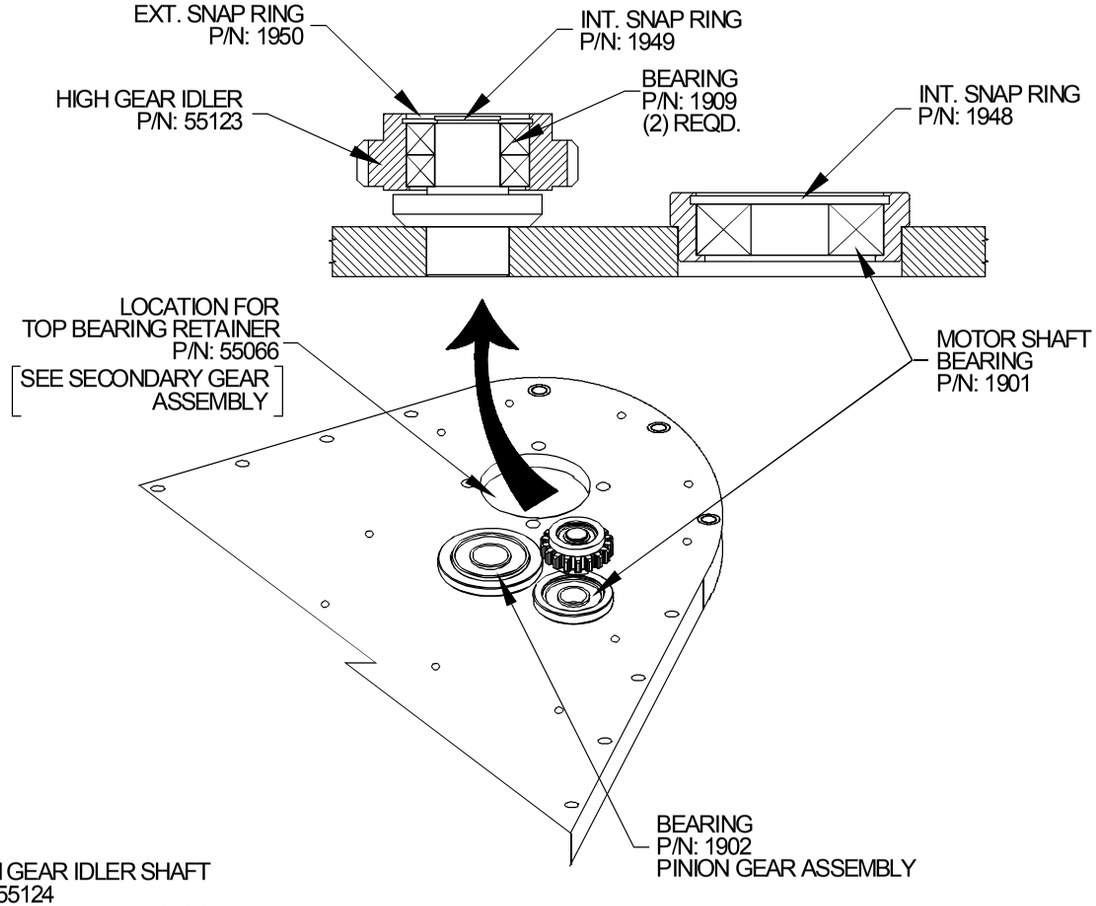


NOTE: DRAWING SHOWN WITHOUT
UPPER LOW PINION GEAR &
DRIVE GEAR



NOTE: DRAWING SHOWN WITHOUT
LOW GEAR HOUSING

GEAR HOUSING TOP VIEW

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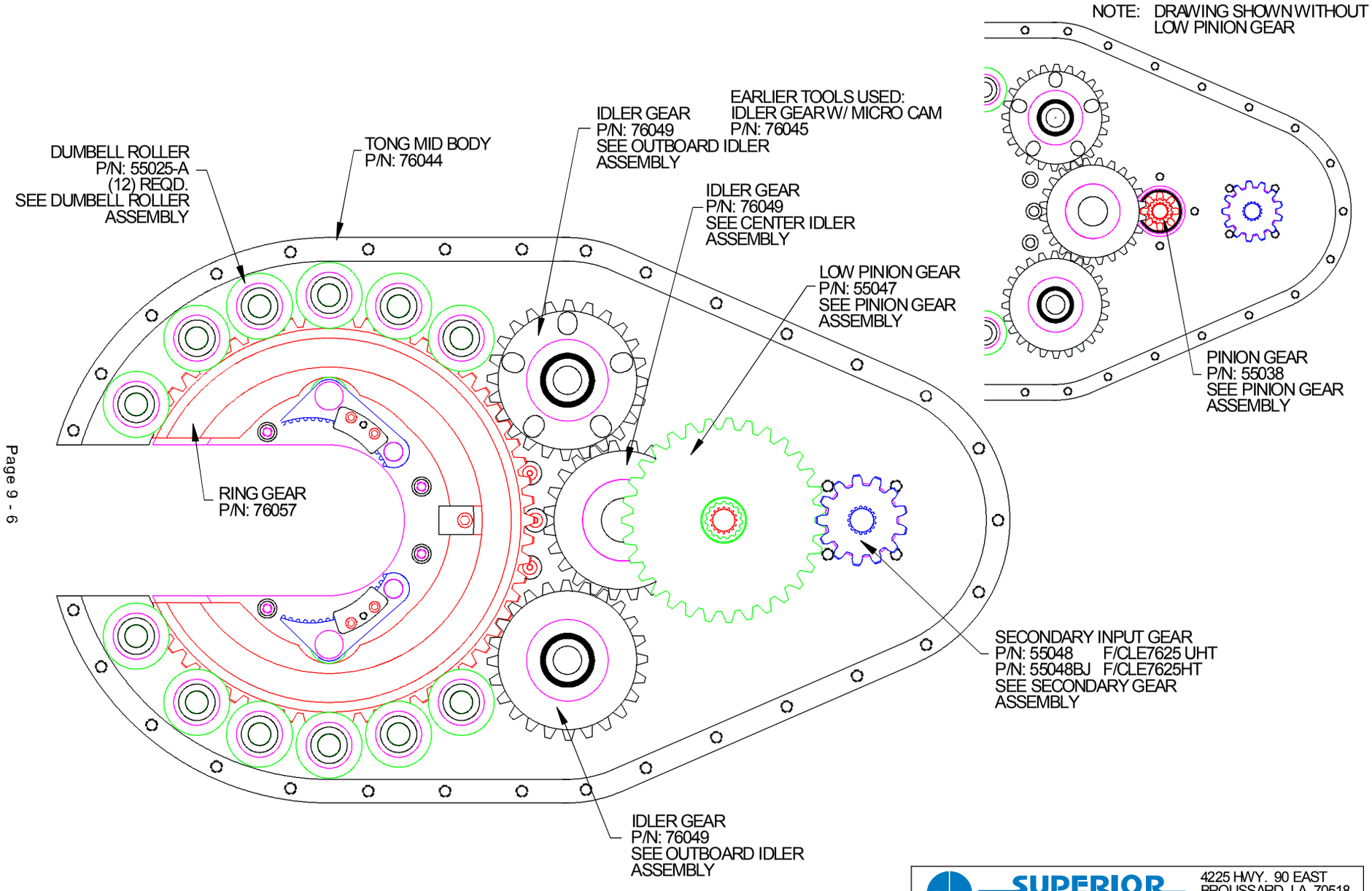

GEAR TRAIN

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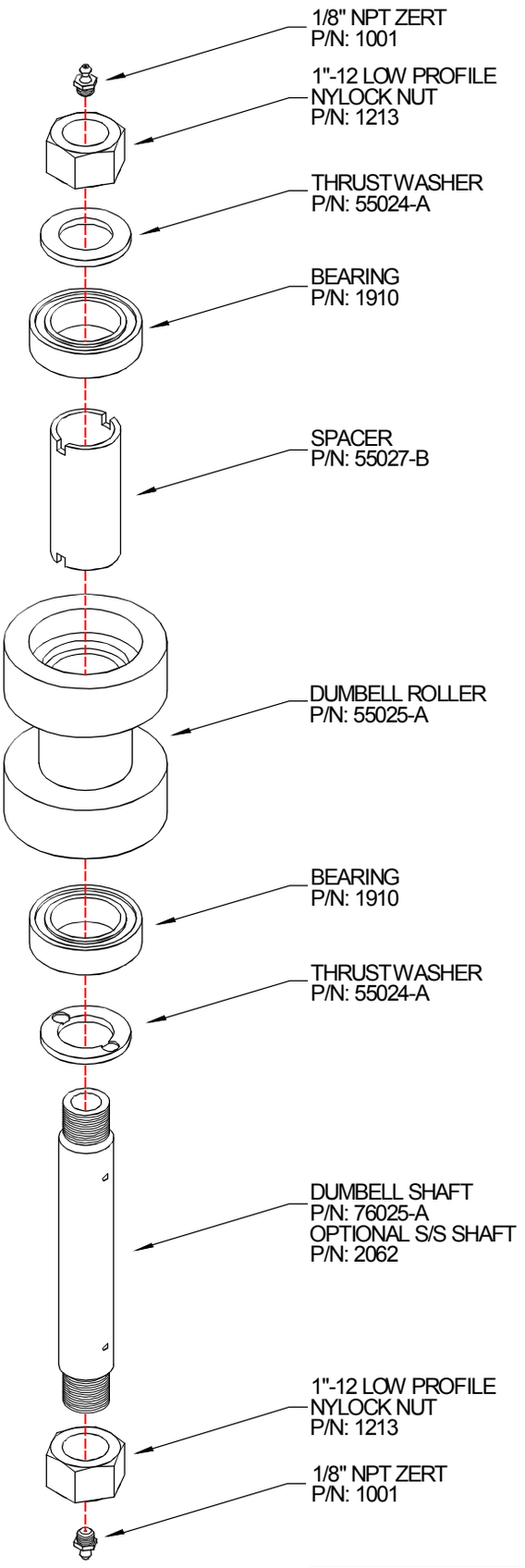

DUMBELL ROLLER ASSEMBLY

1ST GENERATION

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		11/07/01
REV. #	LOG #	DATE

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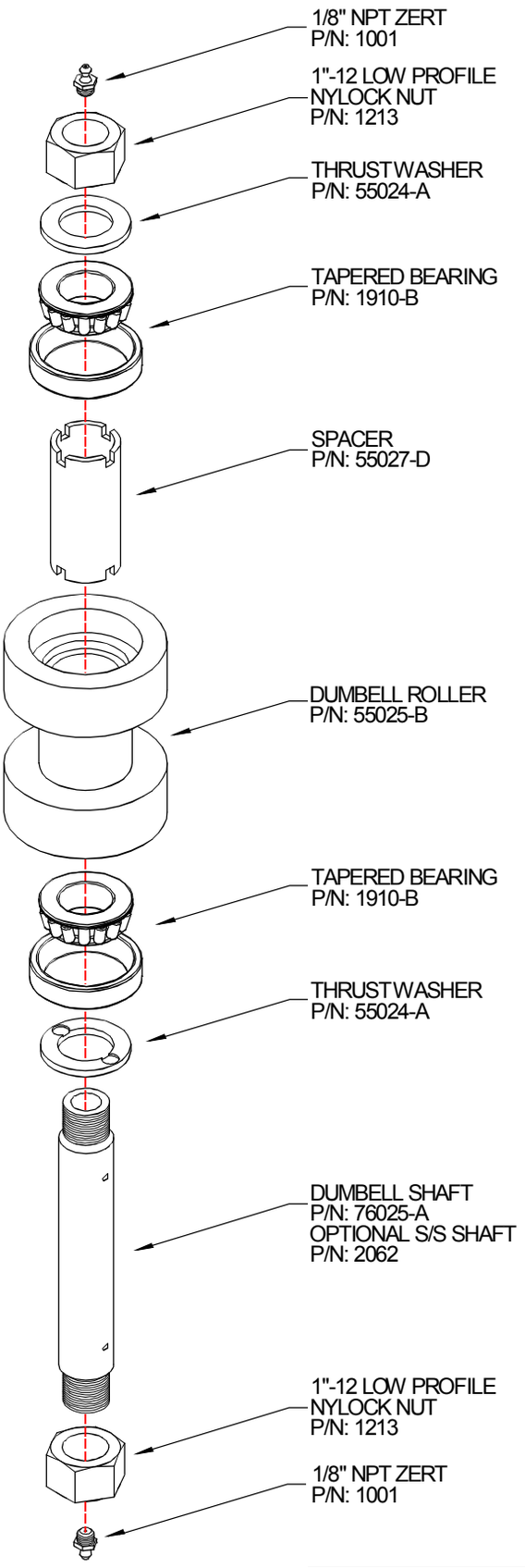

DUMBELL ROLLER ASSEMBLY

2ND GENERATION

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		12/06/01
REV. #	LOG #	DATE

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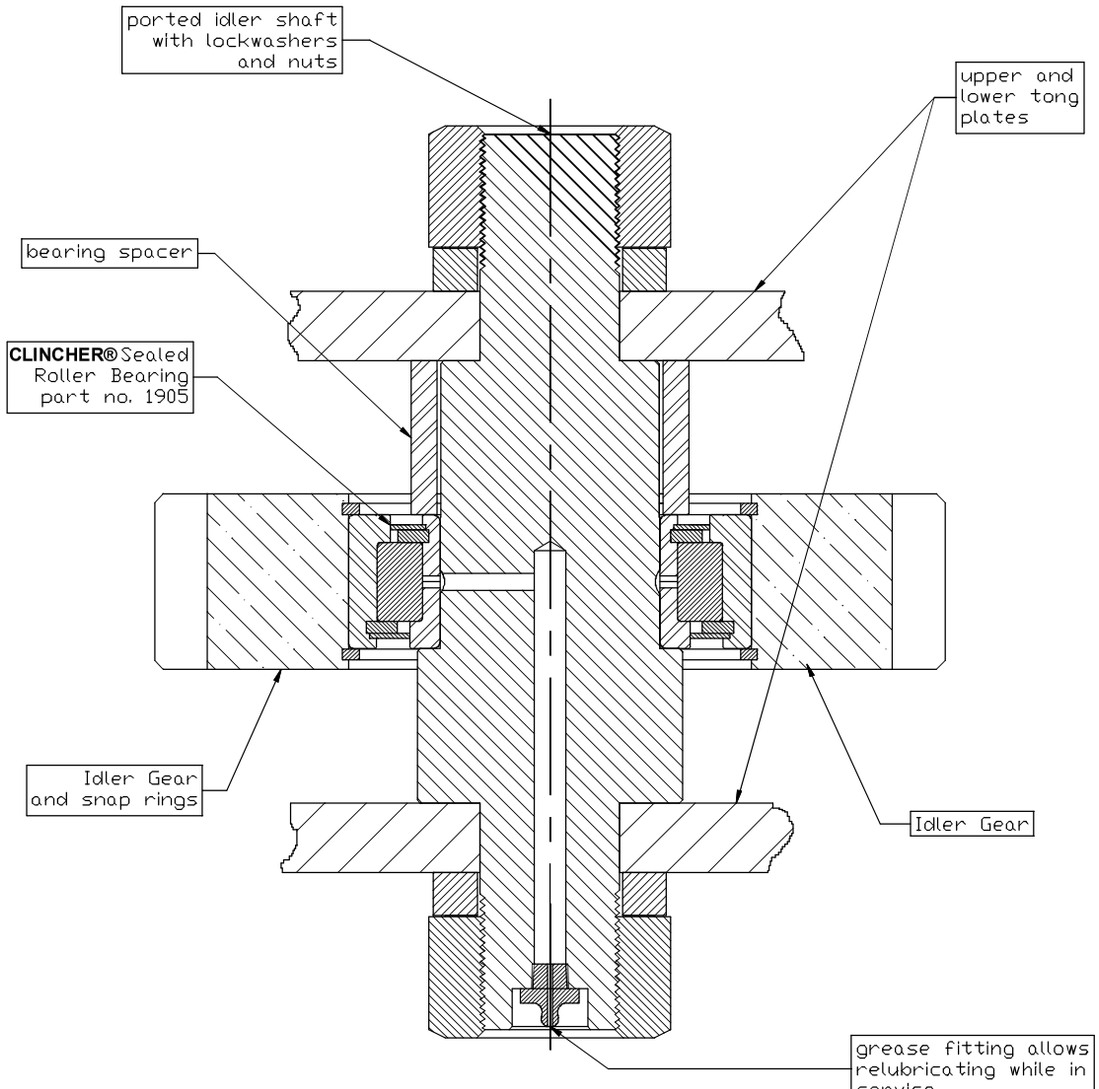
Features and Benefits:
Proprietary sealed bearing with full compliment roller design offers greater load ratings than commercially available sealed ball bearings. The ported inner race allows the bearing to be relubricated without disassembly. Integral elastomeric seals allow grease to be displaced but prevent migration of contaiminants into bearing.

Elastomeric seals are corrosion resistant and suitable for use in environments which are incompatible with traditional aluminum bearing shrouds.

Unique geometric design allows rollers to absorb thrust loads to maximize component life.

Nominal OD: 4.3307 inches
Nominal ID: 2.3622 inches
Nominal Ht: 1.4375 inches
static rating: 37540 lbs
dynaminc rating: 29230 lbs
(1mm cycles, 33 1/3 RPM f/ 500 hrs.)


ported idler shaft with lockwashers and nuts
upper and lower tong plates
bearing spacer
CLINCHER® Sealed Roller Bearing part no. 1905
Idler Gear and snap rings
Idler Gear
grease fitting allows relubricating while in service

SECTION VIEW of typical application

3			
2			
1	DB	12/07/02	added desc of thrust load capability
Rev.#	By	Log#	Description of Revision

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE — R3

2 PLACE DEC. ±.020	3 PLACE DEC. ±.005	FRACTIONS ± 1/16	ANGLES ± .5°	SURFACE 250	FLATNESS AR PL. ± .015 per foot

1. Dimensions are in inches
2. Remove burrs & sharp edges with 1/64x45°max.
3. Machined fillet radii are 1/32
4. Normality,Squareness & parallelism of machine surfaces are .002 per inch, to a max of .012 inches for a single surface.
5. Machine diameters on a common centerline must be concentric within .005 T.I.R & unmachined diameters concentric within .032 T.I.R

△1 or ⬡1 = Revision Number

1.000 = Critical Dimension 100% Inspection Required

SHEET 1 of 2

SUPERIOR Manufacturing & Hydraulics
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PART NAME: SEALED IDLER BEARING

PART #: 1905

DRAWN BY:

APPROVED BY:

CHK BY: DATE:

REF: ILL1000/ILL1142.DWG

MATERIAL SPECIFICATION

Matl.Req:

Initial Condition:

Alternative Matl:

H.T Instructions: Case Depth: C.D

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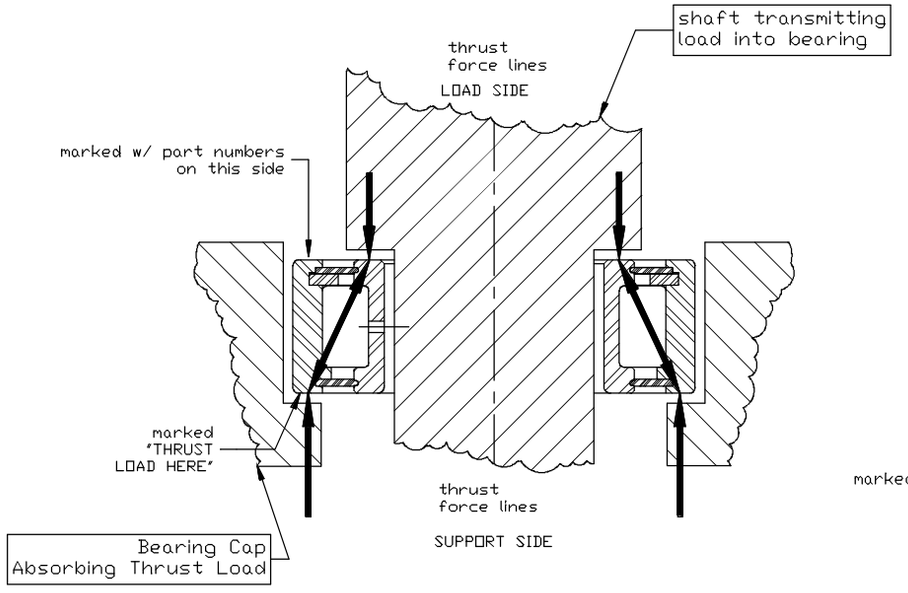
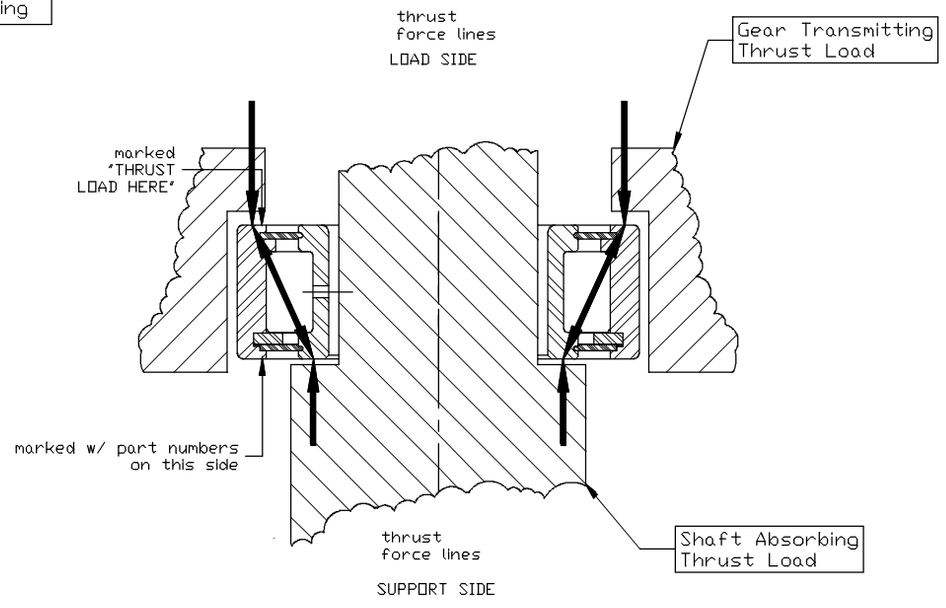


Bottom Bearing Cap Application



Gear Support Application

Installation instructions for **CLINCHER®** BEARING Part Number 1905

Rev.#	By	Log#	Description of Revision
3			
2			
1	DB	12/07/02	added desc of thrust load capability

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UNLESS OTHERWISE SPECIFIED TOLERANCES ARE — R3

2 PLACE DEC. ±.020	3 PLACE DEC. ±.005	FRACTIONS ± 1/16	ANGLES ± .5°	SURFACE 250	FLATNESS AR PL. ± .015 per foot

1. Dimensions are in inches
2. Remove burrs & sharp edges with 1/64x45°max.
3. Machined fillet radii are 1/32
4. Normality,Squareness & parallelism of machine surfaces are .002 per inch, to a max of .012 inches for a single surface.
5. Machine diameters on a common centerline must be concentric within .005 T.I.R & unmachined diameters concentric within .032 T.I.R

△1 or ⬡1 = Revision Number

1.000 = Critical Dimension 100% Inspection Required

SHEET 2 of 2

SUPERIOR Manufacturing & Hydraulics
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BROUSSARD,LA 70518
(318)837-8847

PART NAME: Installation instructions for P/N 1905 SEALED IDLER BEARING

PART #: 1905 | MATERIAL SPECIFICATION

DRAWN BY:

APPROVED BY:

CHK BY: DATE:

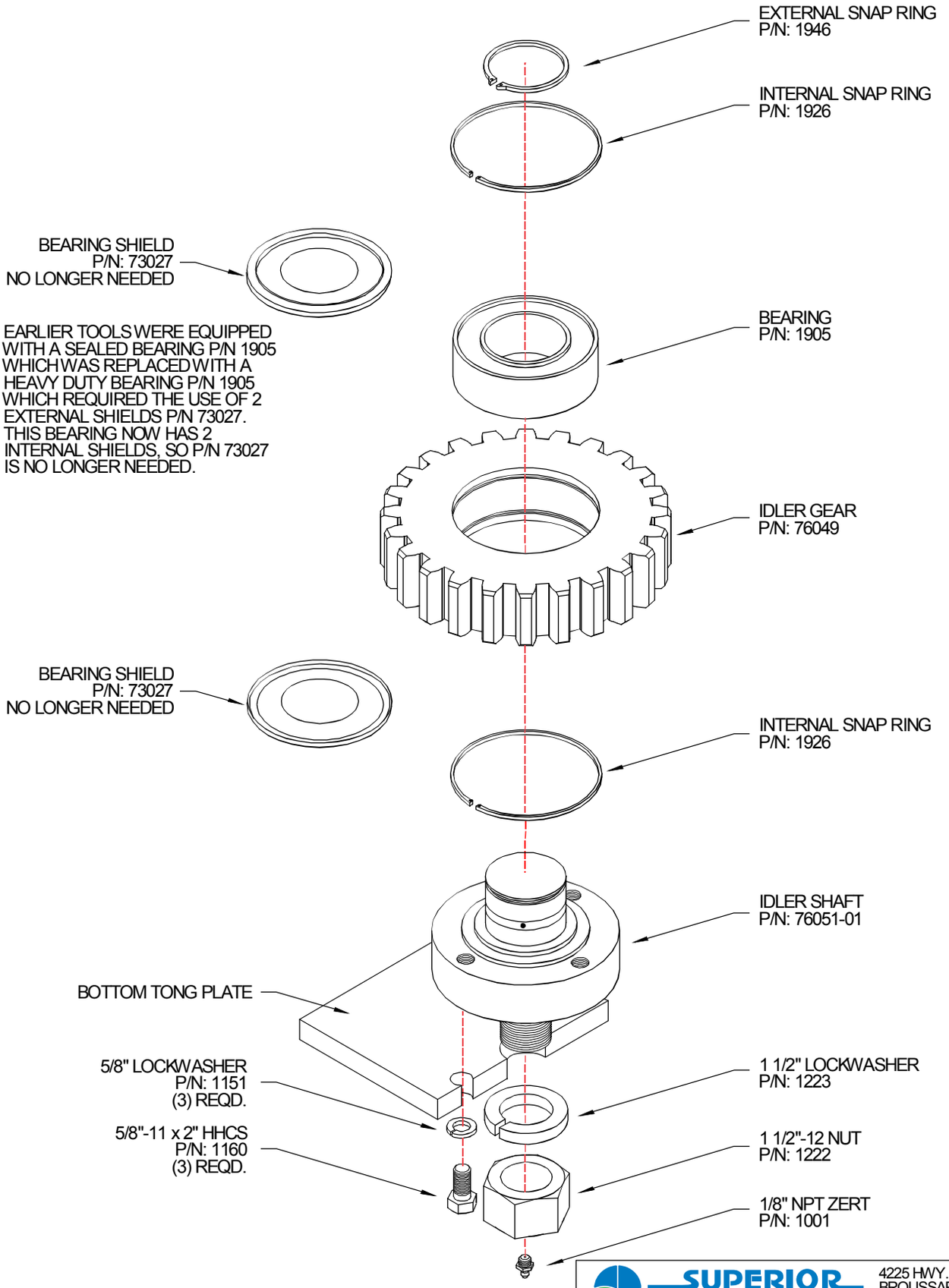
REF: REF ILL1000/ILL1142.DWG

Matl.Req:

Initial Condition:

Alternative Matl:

H.T Instructions: Case Depth: C.D



CENTER IDLER GEAR ASSEMBLY

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		03/24/04

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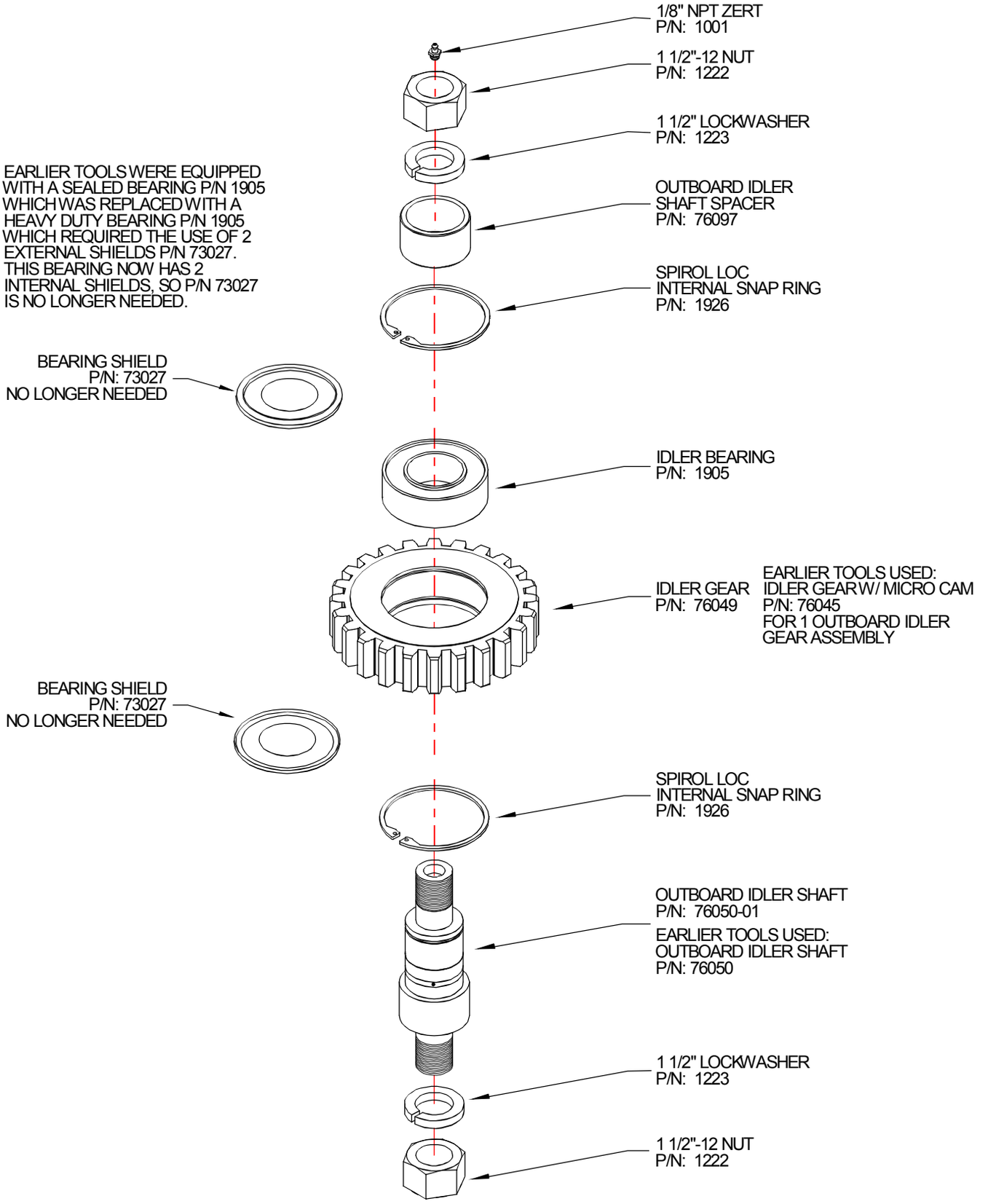

OUTBOARD IDLER GEAR ASSEMBLY

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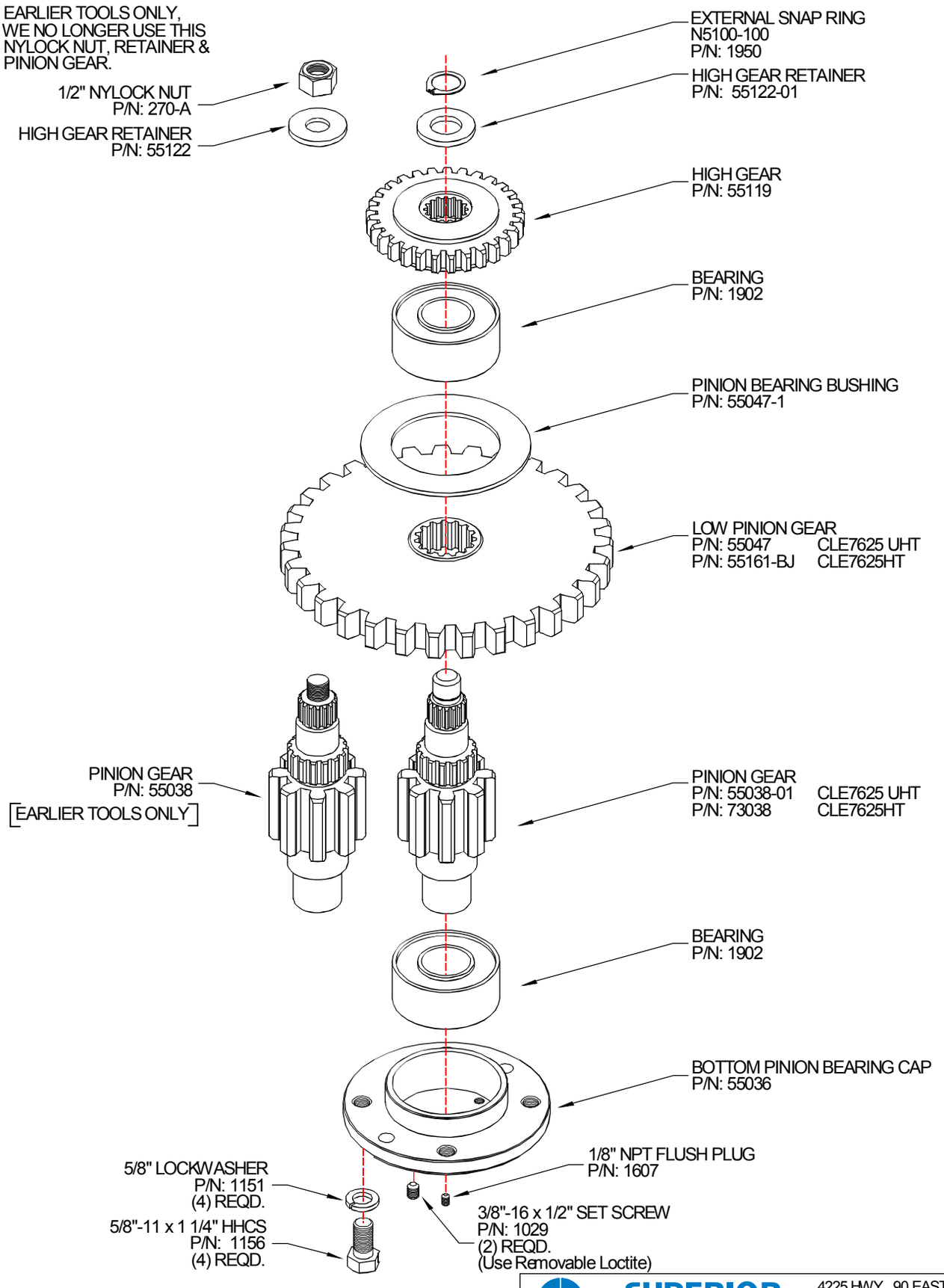
REV. #	LOG #	DATE
		03/24/04

REF: S:\Equip Manuals-Dwgs\CLE7625UHT\Outboard Idler.wpg



PINION GEAR ASSEMBLY

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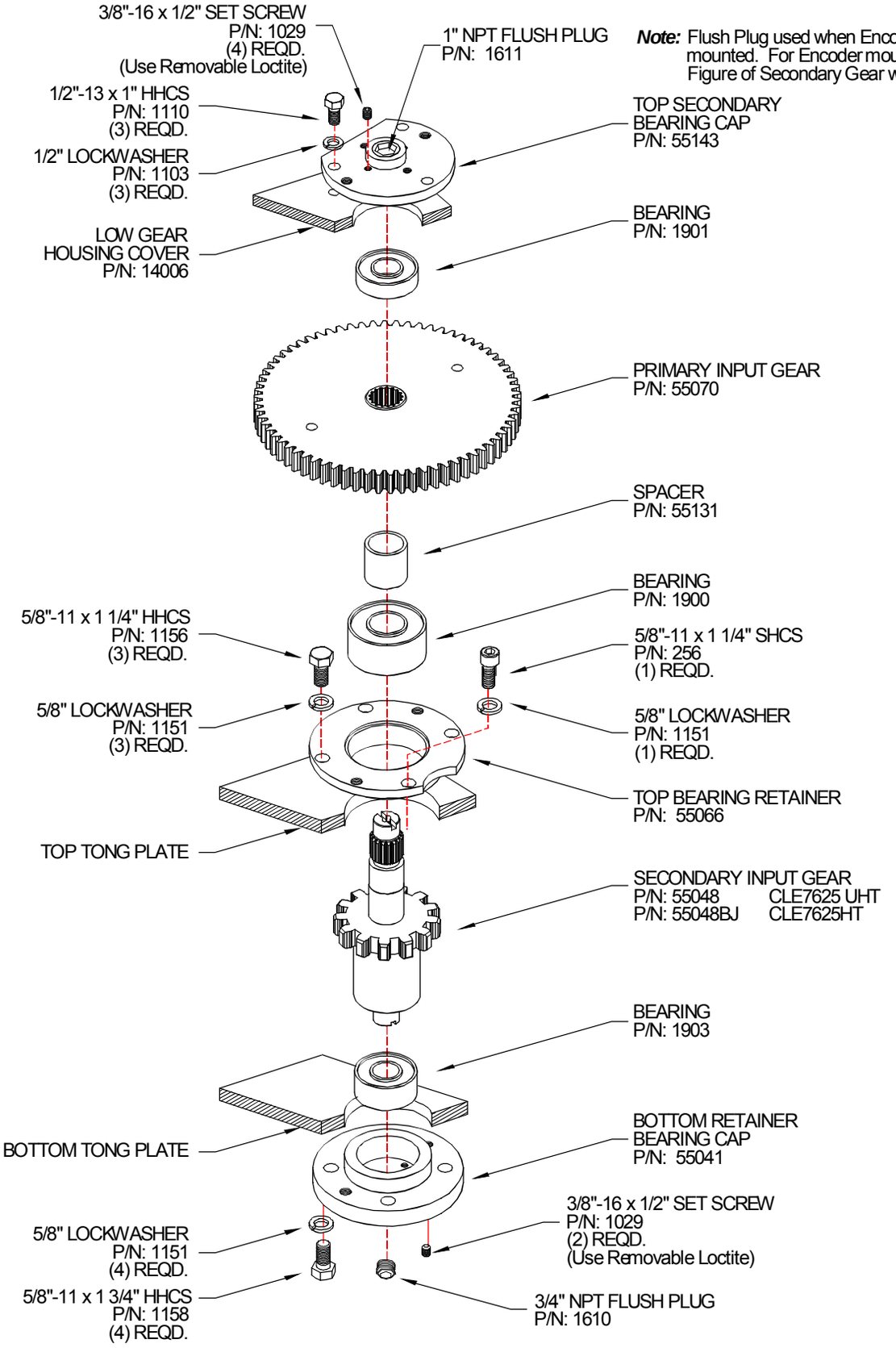
REV. #	LOG #	DATE
		02/23/04

REF: S:\Equip Manuals-Dwgs\CLE7625 UHT\Pinion Gear.wpg



SECONDARY GEAR ASSEMBLY

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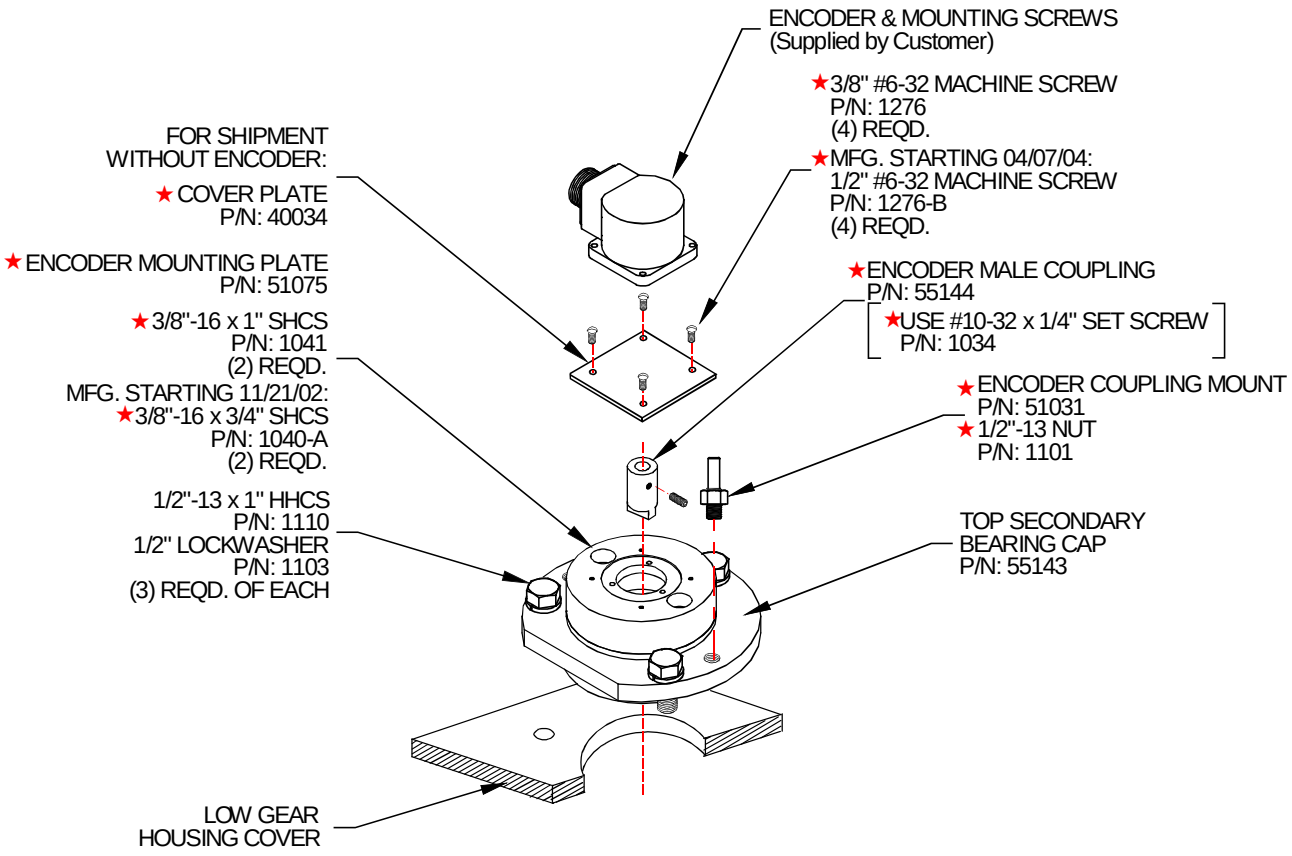
		02/23/04
REV. #	LOG #	DATE

REF: S:\Equip Manuals-Dwgs\CLE7625 UHT\Secondary Gear.wpg



ENCODER ASSEMBLY

ENCODER ASSEMBLY NO. 55142 ★

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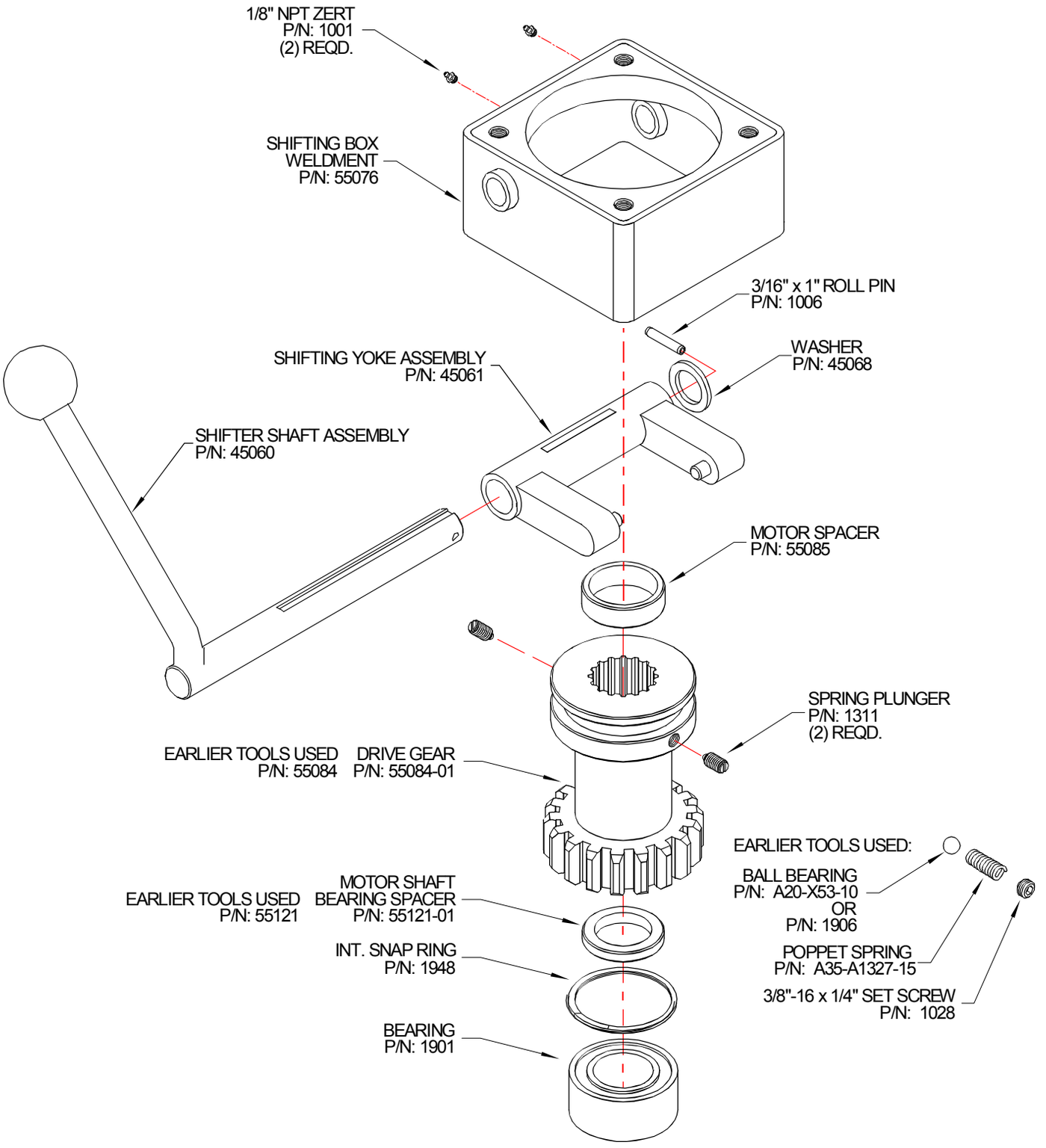
REV. #	LOG #	DATE
2		12/09/04

REF: S:\Equip Manuals-Dwgs\CLE5500\Encoder rev2.wpg



SHIFT ASSEMBLY

1st GENERATION

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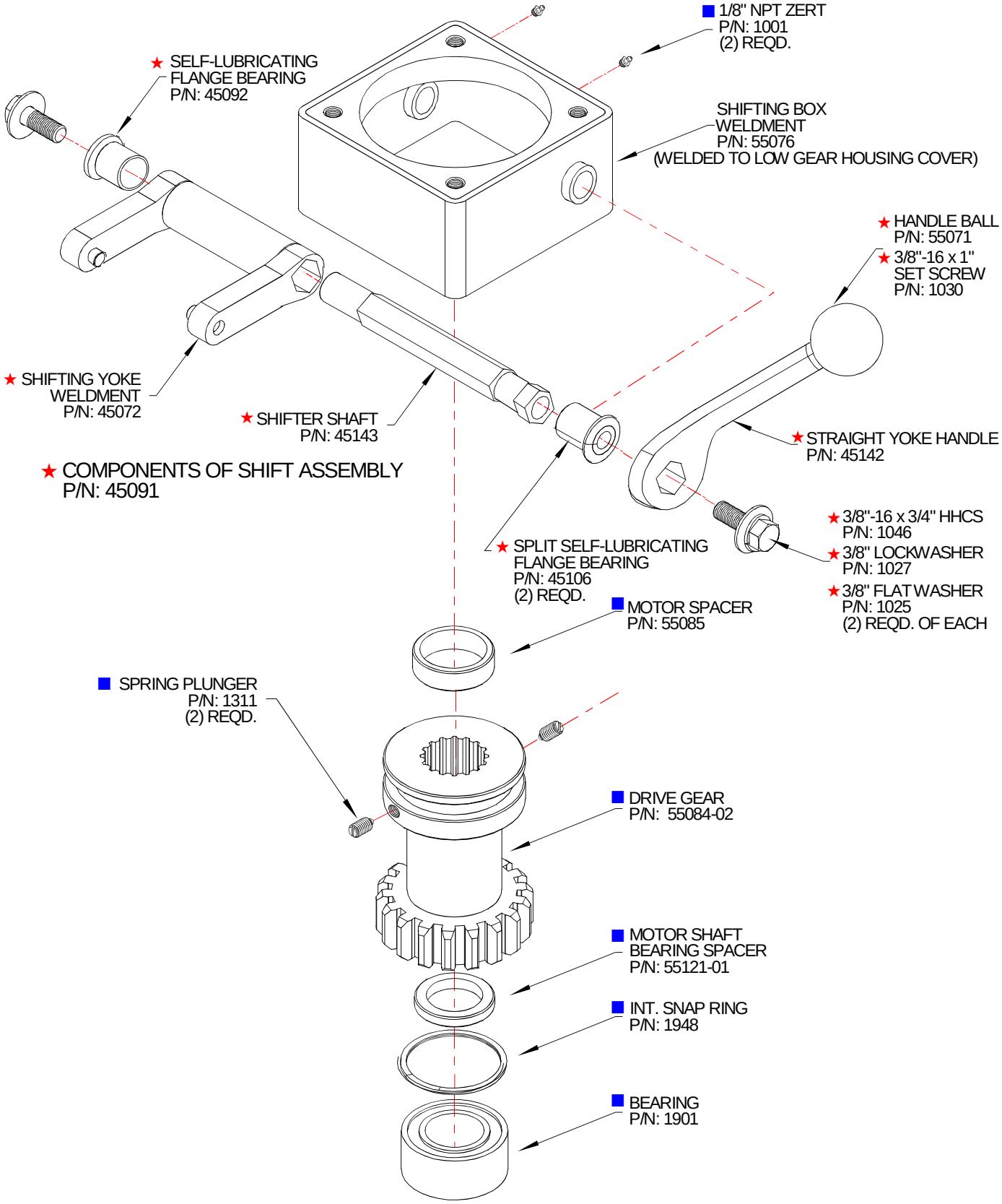
REV. #	LOG #	DATE
4		03/24/04

REF: S:\Equip Manuals\Dwgs\CLE14000\Shift Assy 1st rev4.wpg



SHIFT GEAR ASSEMBLY

2nd GENERATION

ASSEMBLY NO. 26078 ■

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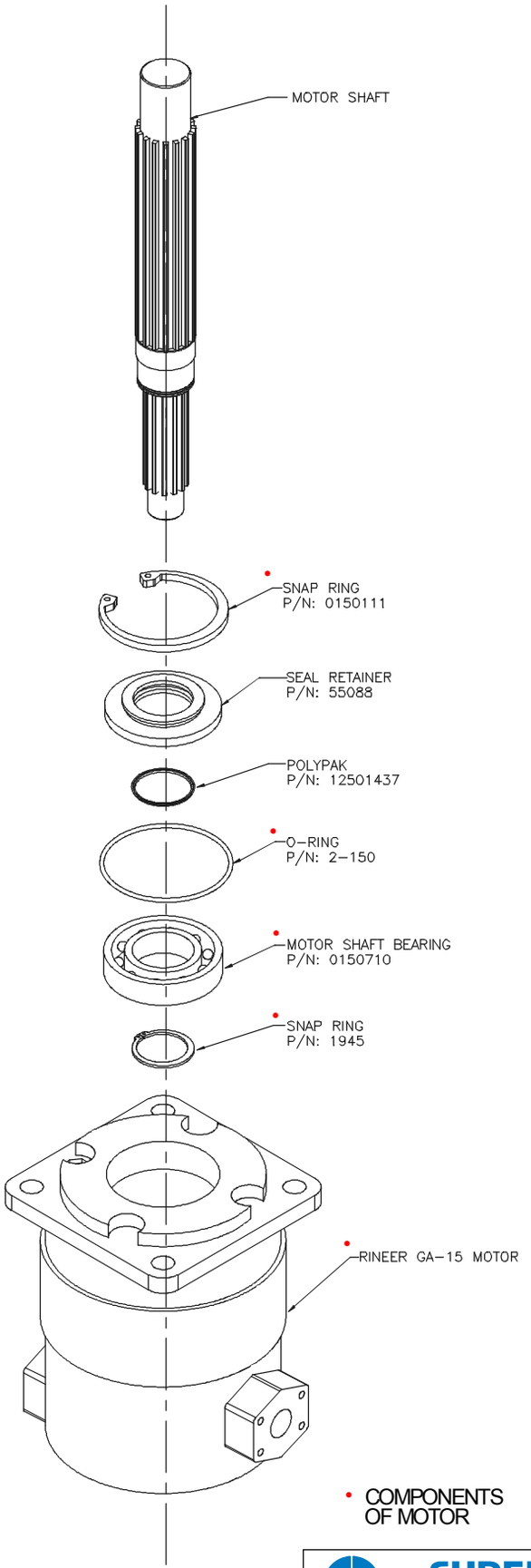
REV. #	LOG #	DATE
3		05/10/05

REF: P:\Manuals\Equip Manuals\Dwgs\CLE14000DP\Shift Assy 2nd rev3.wpg



• COMPONENTS OF MOTOR

MOTOR ASSEMBLY

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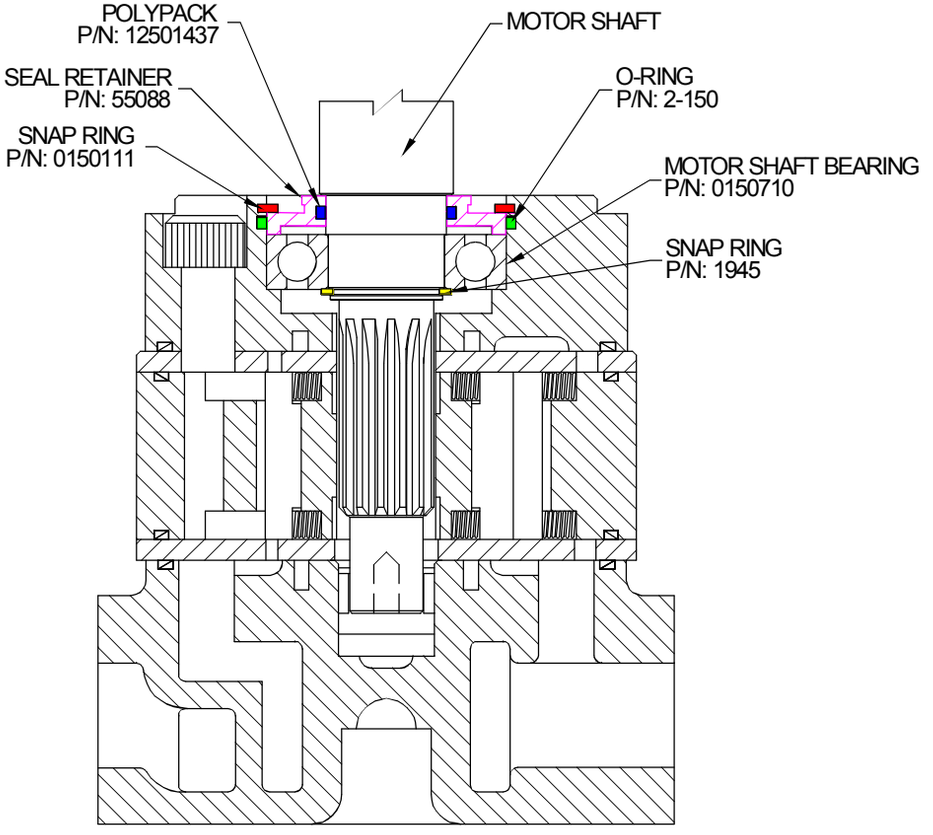
REV. #	LOG #	DATE
		06/07/02

REF: S:\Equip Manuals-Dwgs\Motor\Motor CLE5500+ sht1.wpg



W/ OUT WIPER RING

MOTOR ASSEMBLY

FOR CLARITY PURPOSE ONLY
NOT TO SCALE

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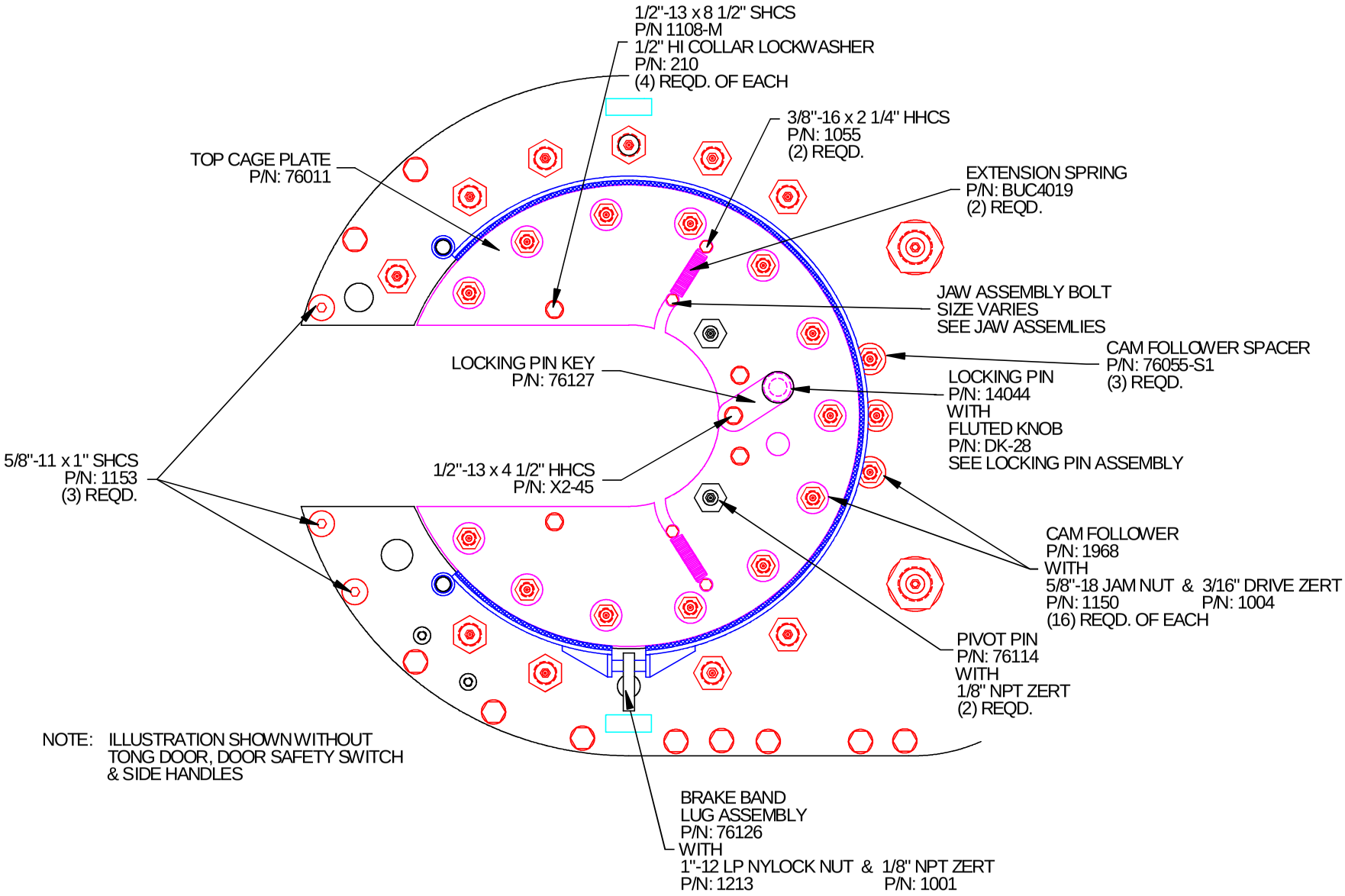
2		04/29/03
REV. #	LOG #	DATE

REF: S:\Equip Manuals-Dwgs\Motor\Motor CLE5500+ sht2 rev2.wpg



TOP CAGE PLATE ASSEMBLY

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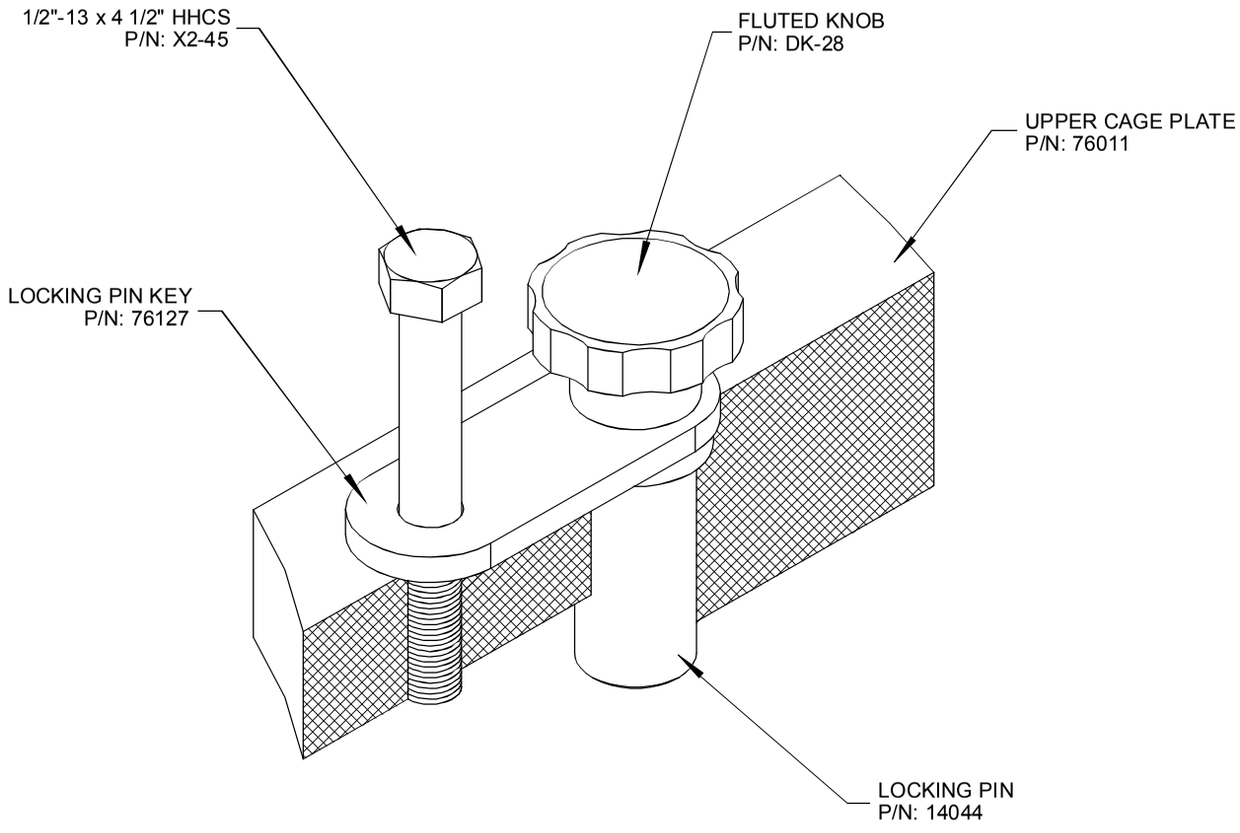
2		03/14/06
REV. #	LOG #	DATE

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625 UHT\Cage Plate Top rev2.wpg



LOCKING PIN ASSEMBLY

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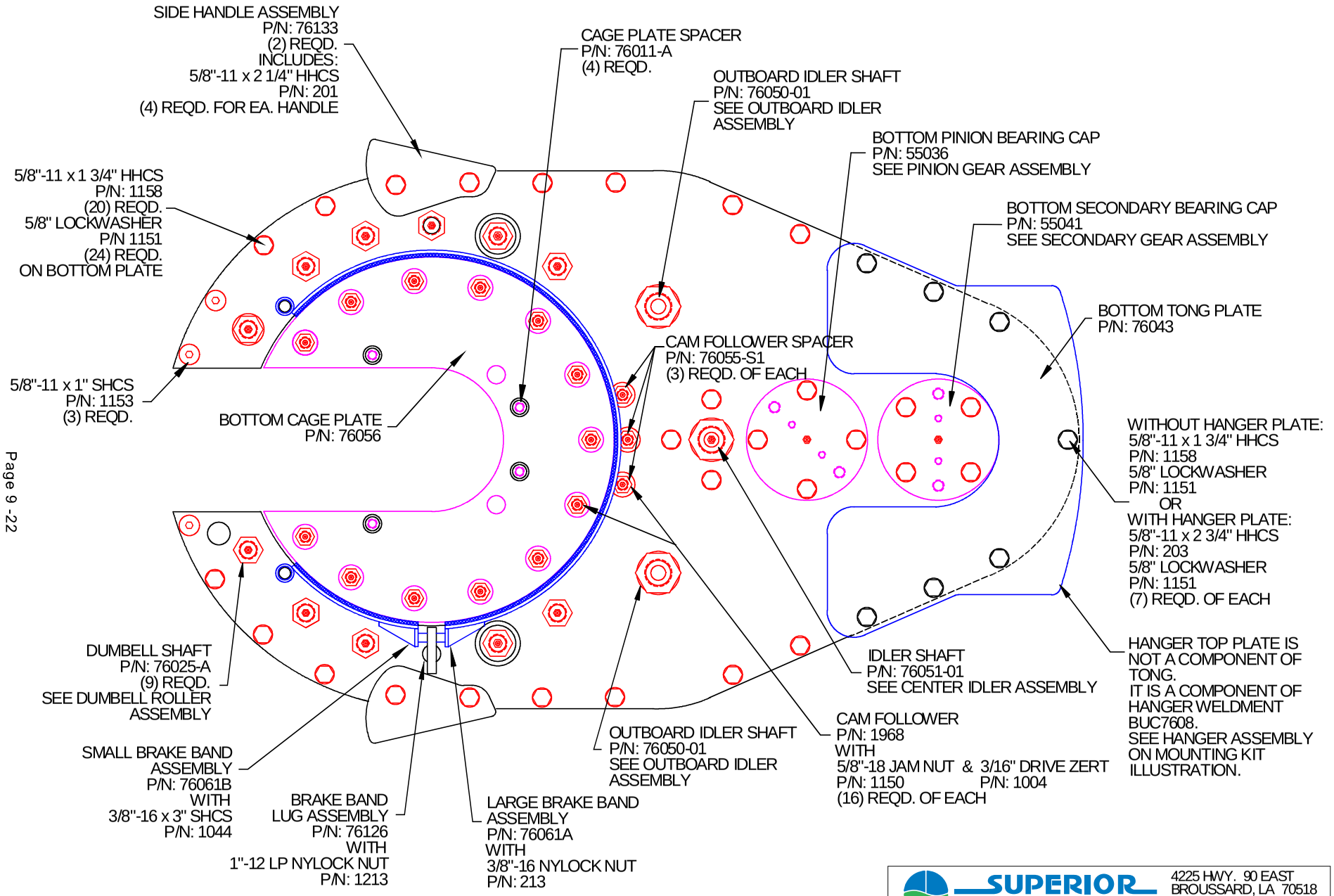
		03/26/04
REV. #	LOG #	DATE

REF: S:\Equip Manuals-Dwgs\CLE7625UHT\Locking Pin.wpg



BOTTOM VIEW

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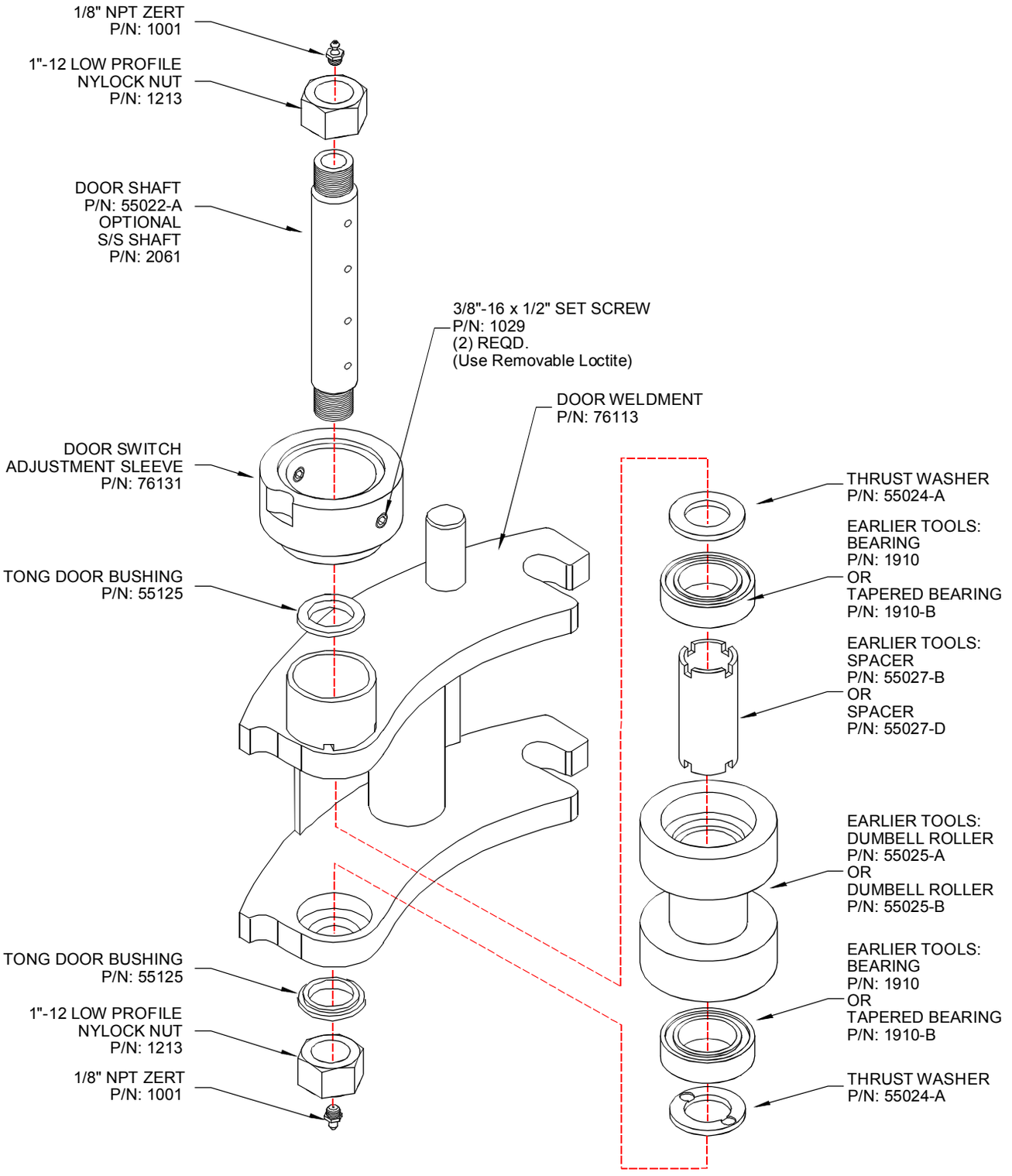
2		03/14/06
REV. #	LOG #	DATE

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625 UHT\Bottom View rev2.wpg



TONG DOOR ASSEMBLY

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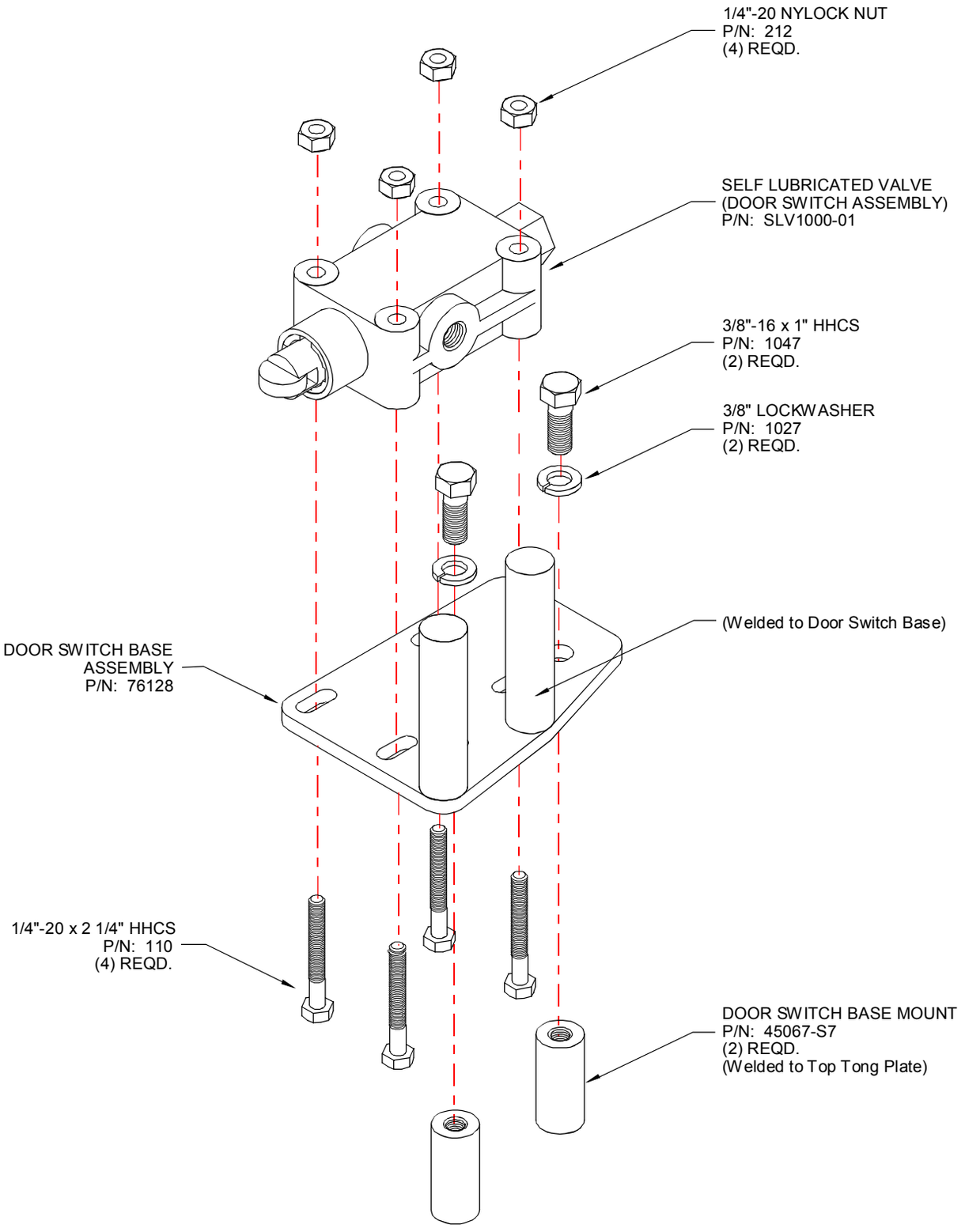
		03/25/04
REV. #	LOG #	DATE

REF: S:\Equip Manuals-Dwgs\CLE7625UHT\Door.wpg



DOOR SWITCH ASSEMBLY

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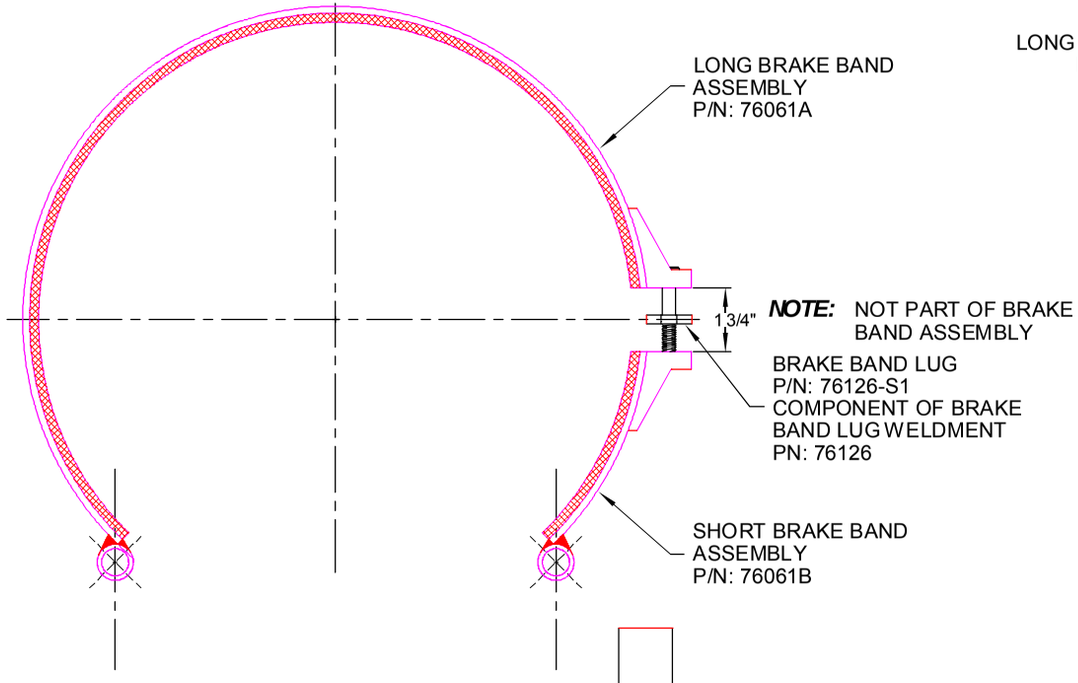
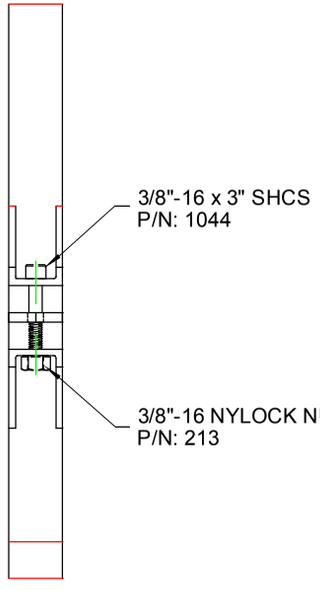
		06/22/00
REV. #	LOG #	DATE

REF: S:\Equip Manuals-Dwgs\Door Switch Assy.wpg

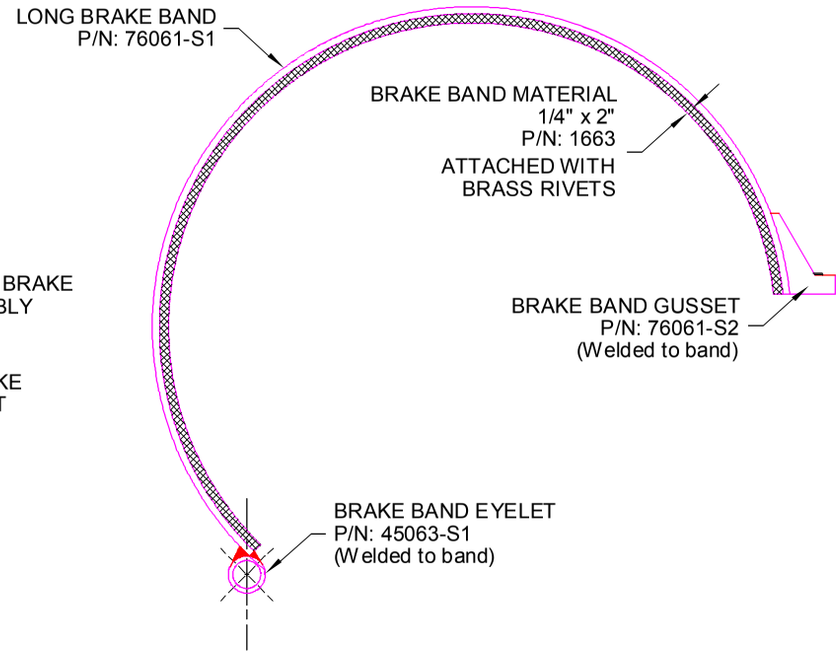




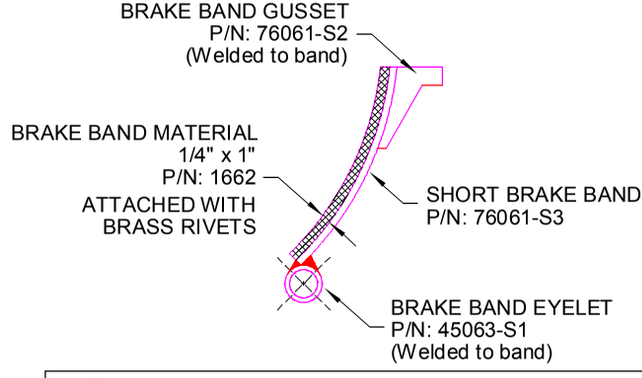
NOTE: CAP SCREW & NUT ARE NOT PART OF BRAKE BAND ASSEMBLY. THEY ARE PART OF TONG ASSY.

NOTE: CAP SCREW AND NUT ARE SHOWN AS BOTTOM VIEW, REVERSE FOR TOP BRAKE BAND.

LARGE BRAKE BAND ASSEMBLY
ASSEMBLY NO. 76061A



SMALL BRAKE BAND ASSEMBLY
ASSEMBLY NO. 76061B



BRAKE BAND ASSEMBLY

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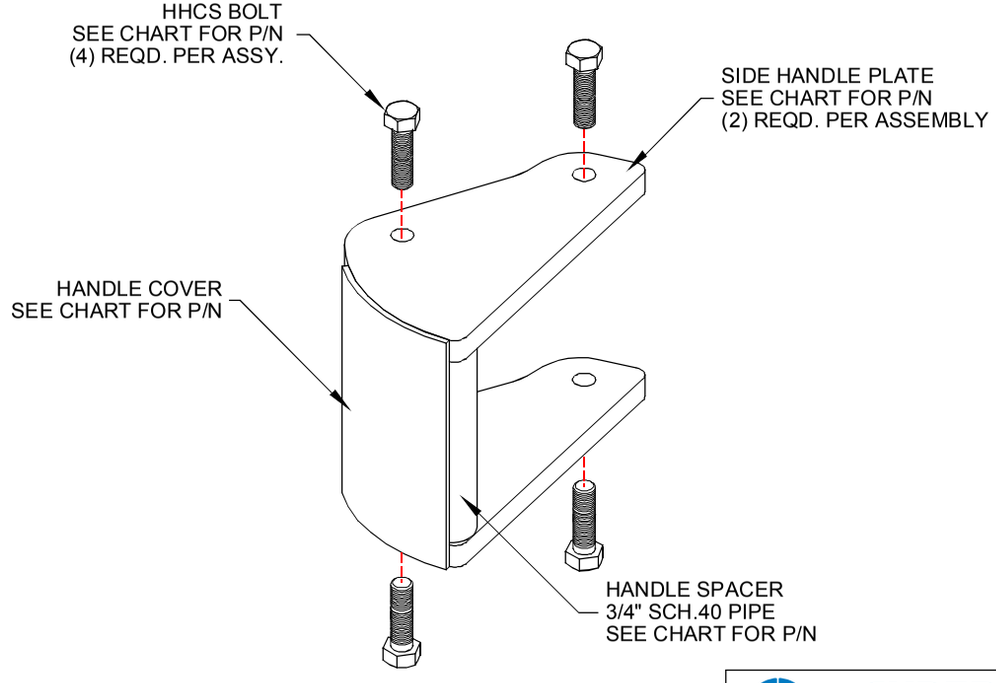
		03/26/04
REV. #	LOG #	DATE

REF: S:\Equip Manuals\Dwgs\CLE7625UHT\Brake Band Assy.wpg

TONG	ASSEMBLY NUMBER	HANDLE SPACER PIPE PART NO.	HANDLE COVER PLATE PART NO.	SIDE HANDLE PLATE PART NO.	HHCS BOLT	
					PART NO.	SIZE
4 1/2 STANDARD	41111	41111-S1	41111-S2	45121	1055	3/8"-16 x 2 1/4"
5 1/2 STANDARD	51111	51111-S1	51111-S2	45119	1055	3/8"-16 x 2 1/4"
5 1/2 LOCKJAW	58086	51111-S1	51111-S2	45121	1055	3/8"-16 x 2 1/4"
5 1/2 UHT & XHT	55141	73017-S1	55141-S2	55200	201	5/8"-11 x 2 1/4"
5 1/2 XHT01	59067	73017-S1	73017-S2	59067-S1	201	5/8"-11 x 2 1/4"
7 5/8 STANDARD	76133	73017-S1	55141-S2	55200	201	5/8"-11 x 2 1/4"
7 5/8 DRILL PIPE -35	73017	73017-S1	73017-S2	14035	201	5/8"-11 x 2 1/4"
7 5/8 LOCKJAW	(2) 73095	73095-S1	73095-S2	14035-01	201	5/8"-11 x 2 1/4"
7 5/8 & 8 5/8 DRILL PIPE -60 & -03	(1) 74095	73095-S1	73095-S2	14035-02	201	5/8"-11 x 2 1/4"



SIDE HANDLE ASSEMBLY

SEE CHART FOR ASSEMBLY NUMBER

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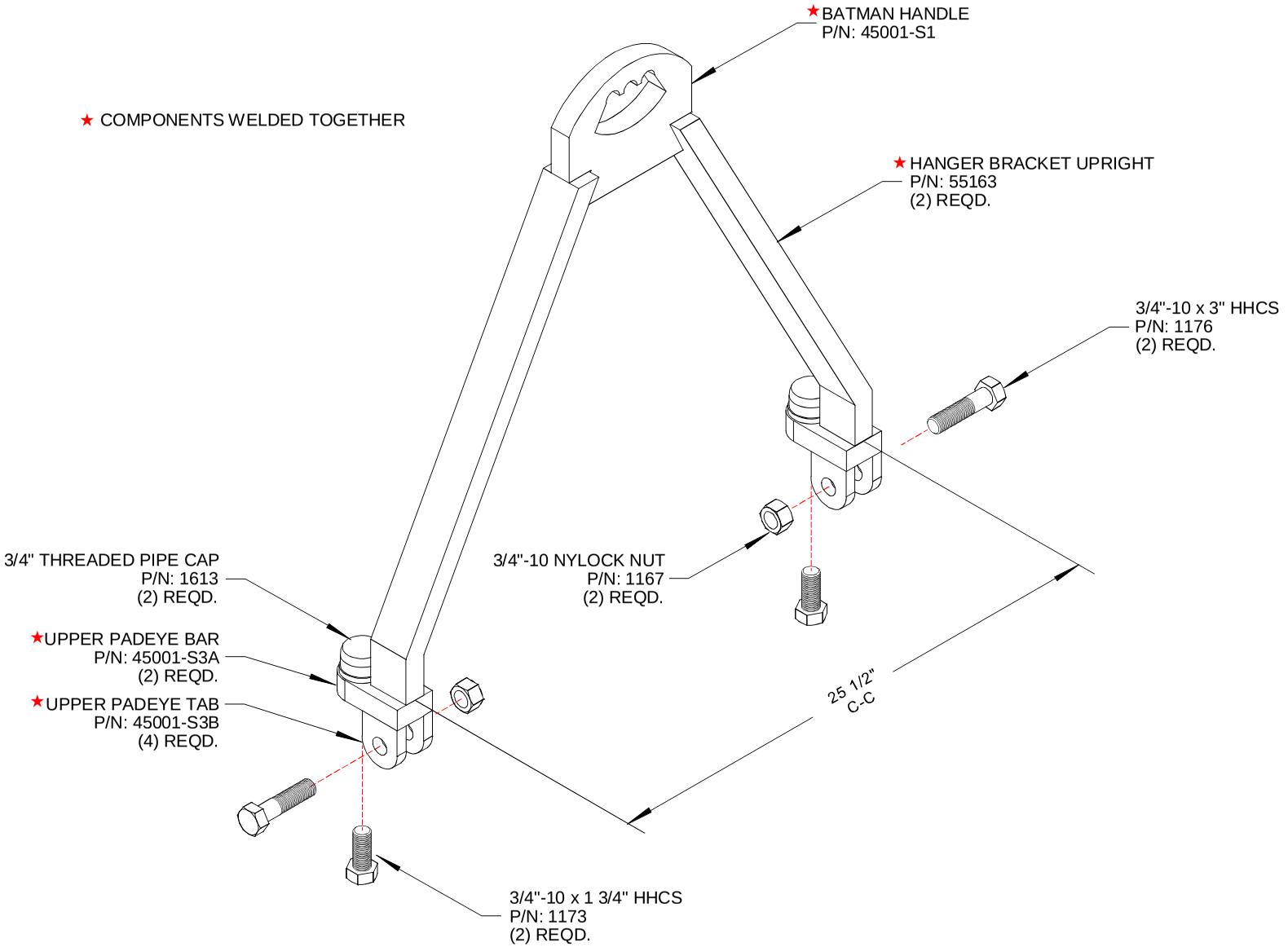
REV. #	LOG #	DATE
6		10/24/03

REF: S:\Equip Manuals-Dwgs\ILL1087 Side Hdle Assy rev6.wpg



HANGER BRACKET ASSEMBLY

ASSEMBLY NO. 55001

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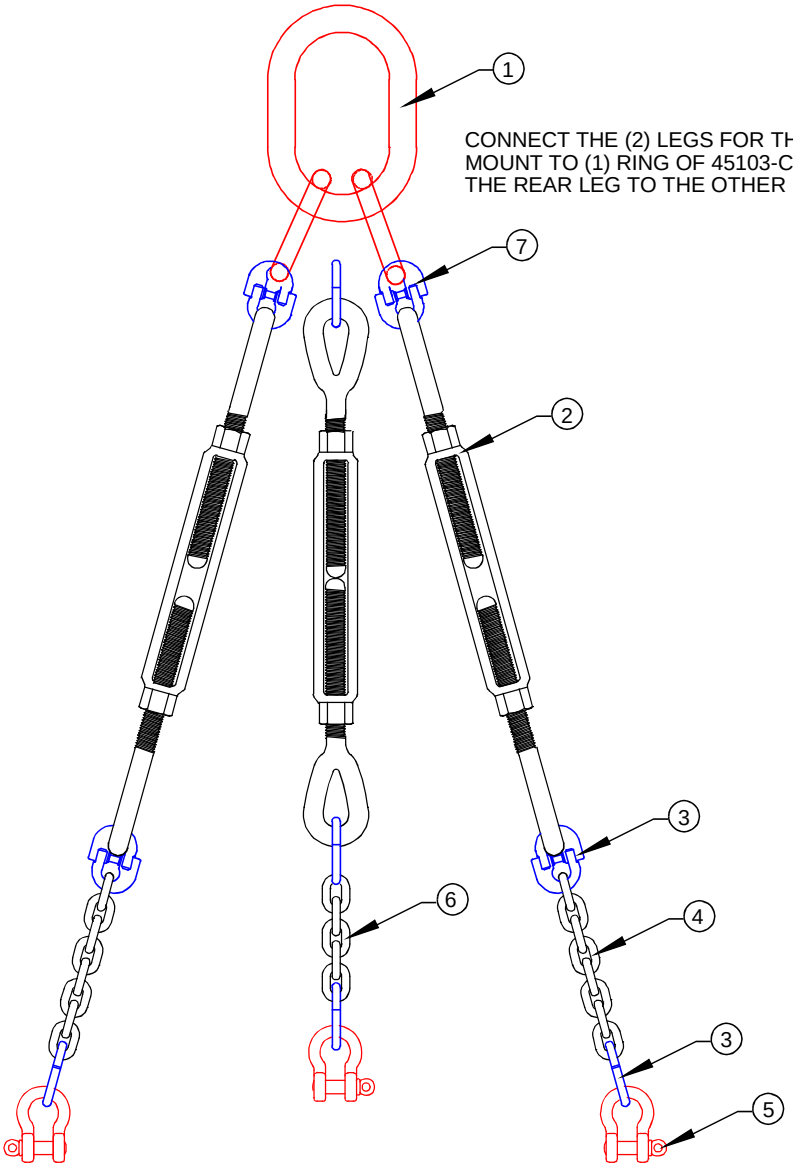
		11/14/01
REV. #	LOG #	DATE

REF: P:\Manuals\Equip Manuals\Dwgs\CLE5500\Hanger 55001.wpg

Item #	Qty.	Part Number	Description
1	1	45103-C	1" A-345 MASTER LINK ASSEMBLY
2	3	55001-02	3/4" x 6" TURNBUCKLE
3	6	40027-S3	5/16" CONNECTING LINK
4	2	- - - - -	5/16" CHAIN LINK (8 LINKS)
5	3	40027-S4A	1/2" SHACKLE
6	1	- - - - -	5/16" CHAIN LINK (5 LINKS)
7	3	40027-S3B	3/8" CONNECTING LINK



BRIDLE ASSEMBLY

ASSEMBLY NUMBER 55001-01
FOR TONG MODEL CLE7625 UHT

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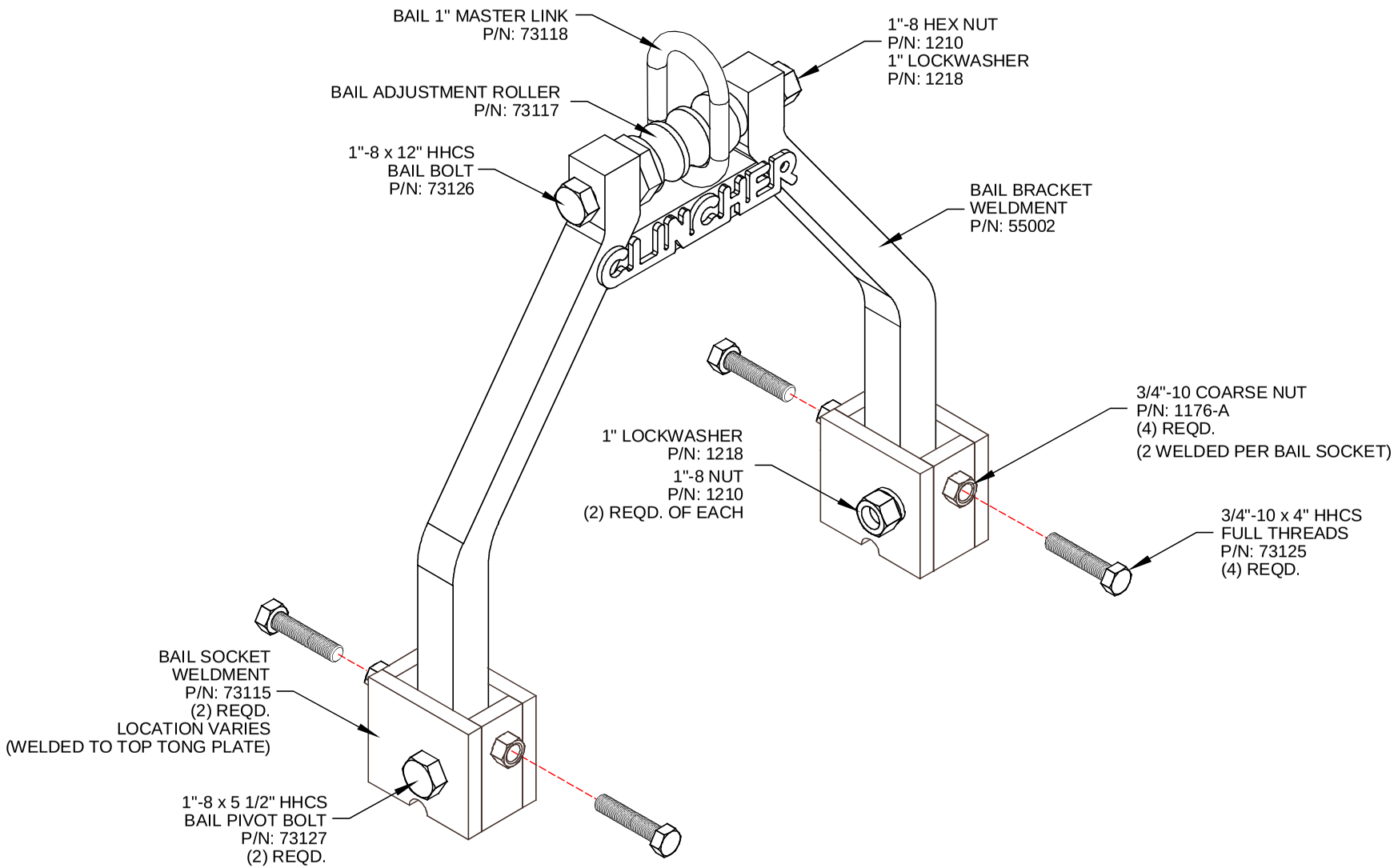
REV. #	LOG #	DATE
2		09/15/05

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625UHT\Bridle Assy rev2.wpg



BAIL ASSEMBLY

ASSEMBLY NUMBER 73121
ACCESSORY FOR TONG MODEL CLE7625 UHT

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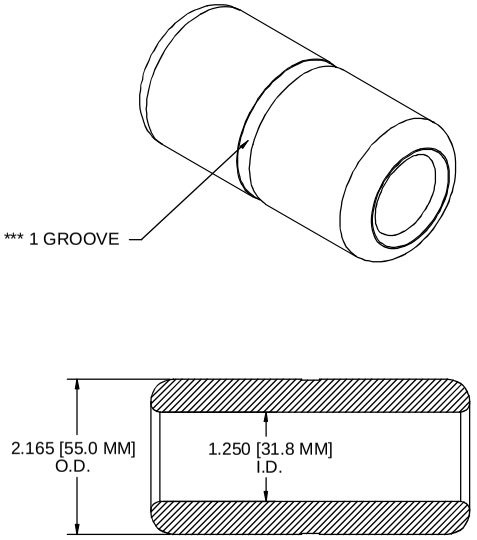
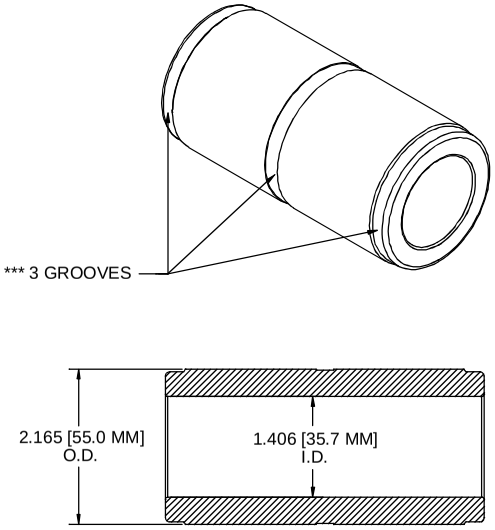
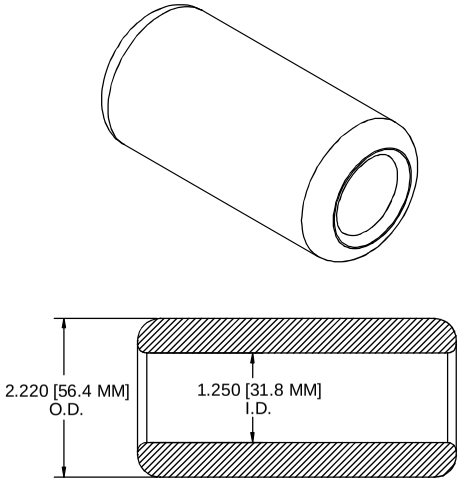
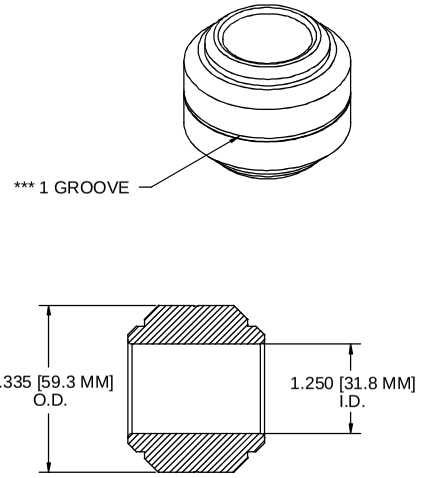
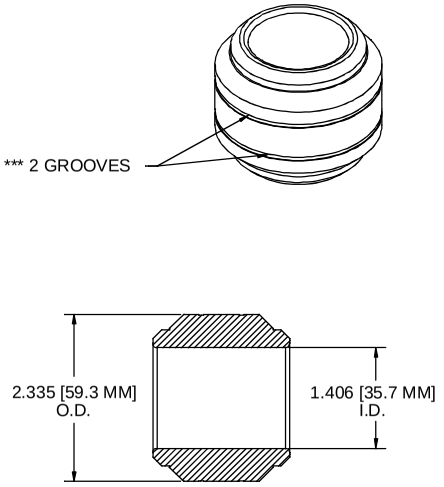
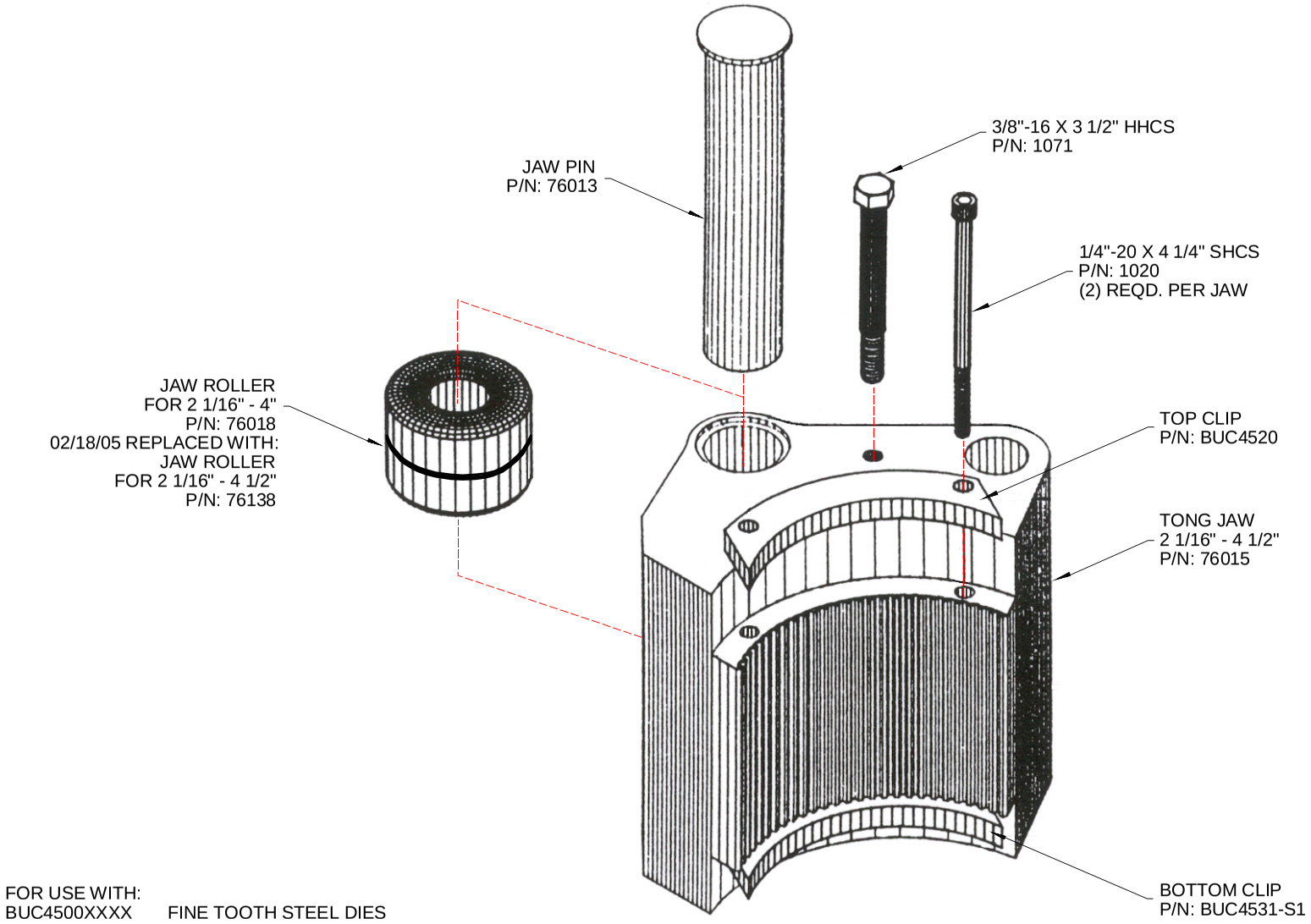
		03/26/04
REV. #	LOG #	DATE

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625UHT\Bail Assy.wpg

	STANDARD	LOW FRICTION	DOVETAIL JAWS
JAW RANGE (7 5/8 - 4 3/4)	 P/N: 76136 USED IN ASSEMBLY CJ-76B	 P/N: 76137 USED IN ASEMBLY CJ-LF-76B	 P/N: 76014 USED IN ASSEMBLIES CJDT76X_ _ _ _ & CJ-70A
JAW RANGE (4 1/2 - 2 1/16)	 P/N: 76138 USED IN ASSEMBLY CJ-76A	 P/N: 76139 USED IN ASSEMBLY CJ-LF-76A	

*** NEW IDENTIFICATION GROOVES



FOR USE WITH:
BUC4500XXXX FINE TOOTH STEEL DIES

7 5/8" UHT TONG JAW ASSEMBLY

2 3/8" - 4 1/2" ASSEMBLY NO. CJ-76A

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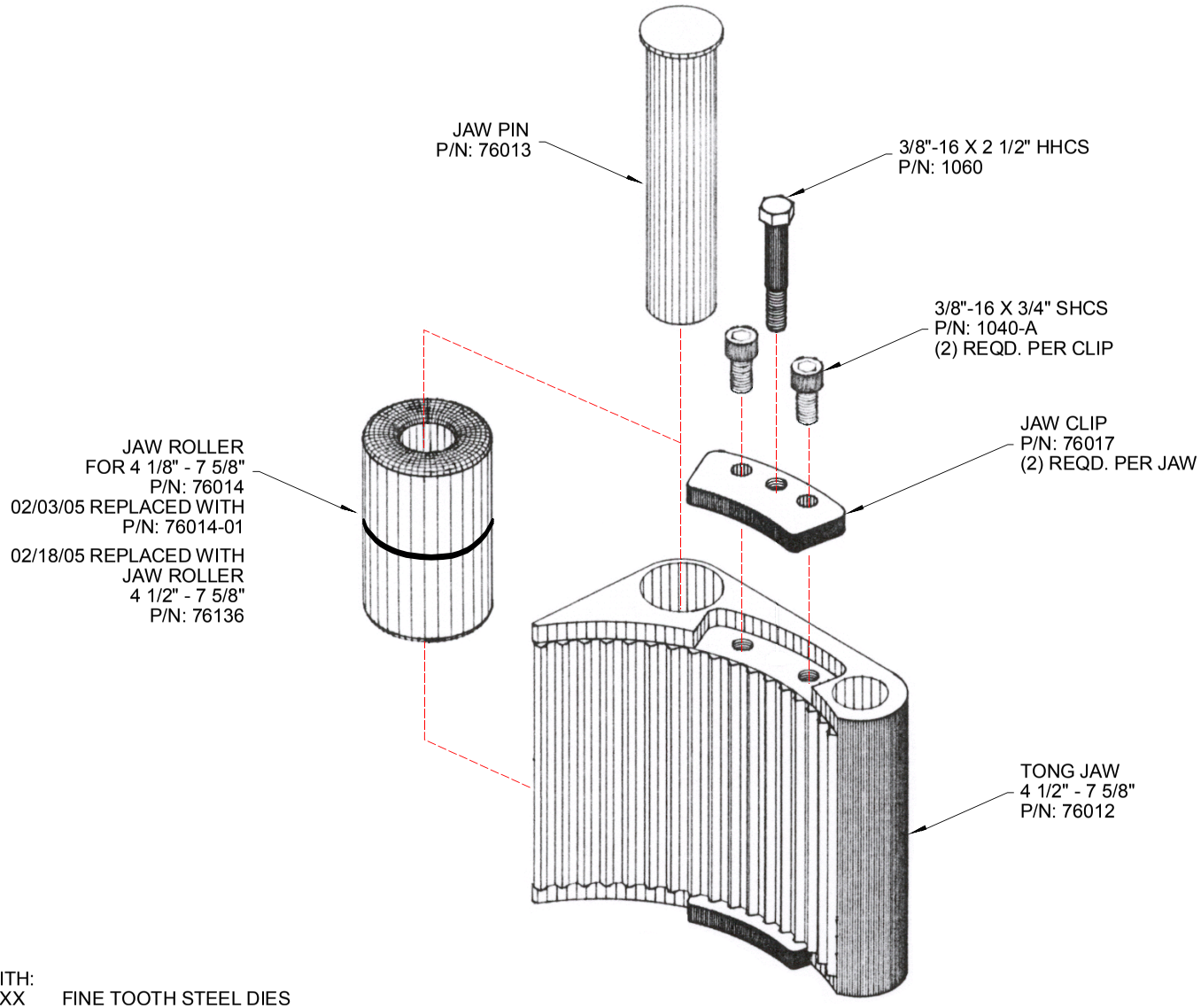
REV. #	LOG #	DATE
1		04/18/05

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625UHT\Jaw CJ-76A rev1.wpg



FOR USE WITH:
BUC7625XXXX FINE TOOTH STEEL DIES
BB7625XXXX **GRIT FACE™** DIES (4 1/2" AND LARGER ONLY)

7 5/8" UHT TONG JAW ASSEMBLY

4 1/2" - 7 5/8" ASSEMBLY NO. CJ-76B

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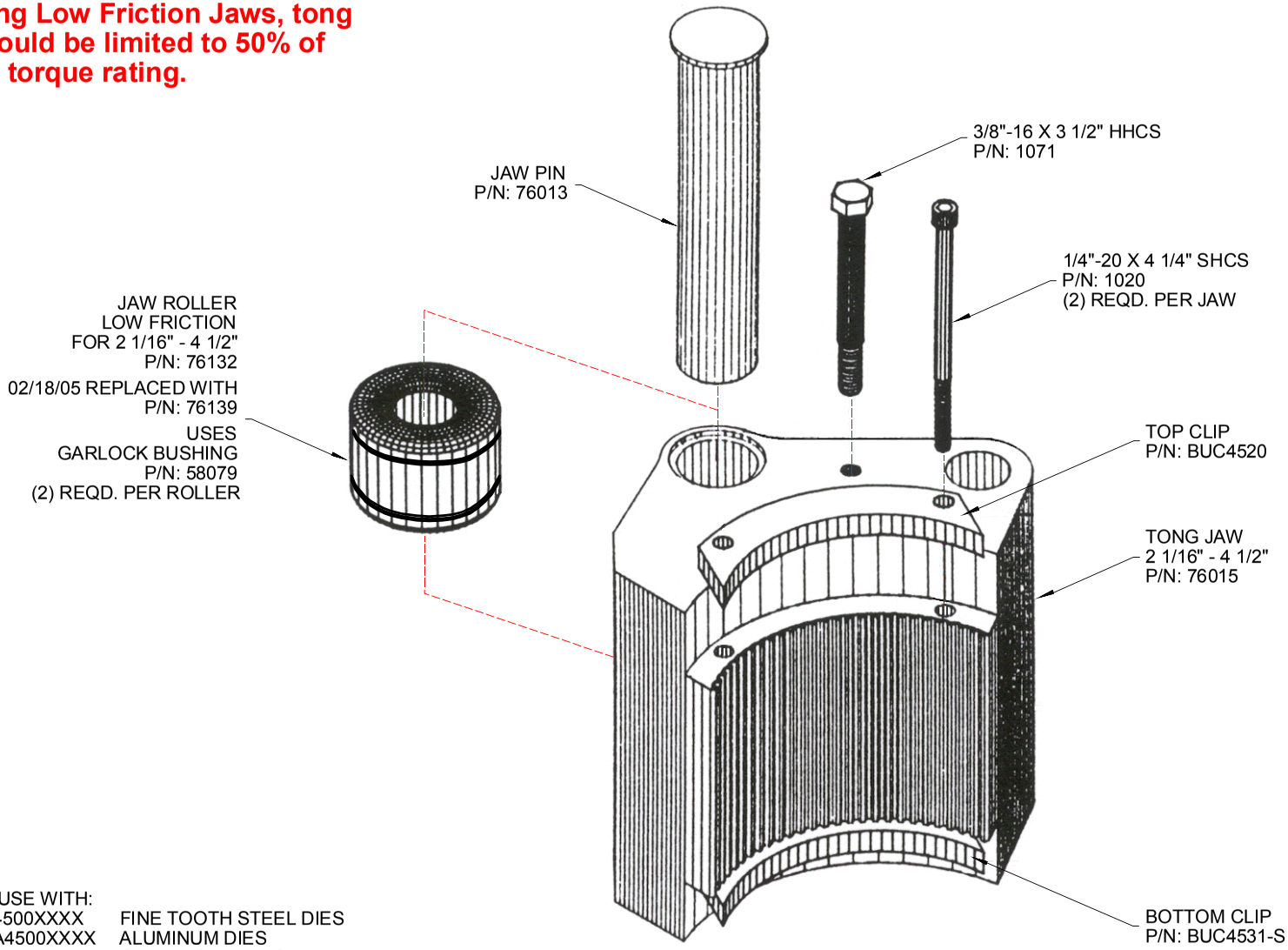
REV. #	LOG #	DATE
2		04/18/05

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625UHT\Jaw CJ-76B rev2.wpg

CAUTION!
When using Low Friction Jaws, tong torque should be limited to 50% of maximum torque rating.



FOR USE WITH:

BUC4500XXXX	FINE TOOTH STEEL DIES
BUCA4500XXXX	ALUMINUM DIES
BB4500XXXX	**GRIT FACE™** DIES

7 5/8" UHT TONG
LOW FRICTION JAW ASSEMBLY

2 1/16" - 4 1/2" ASSEMBLY NO. CJ-LF-76A

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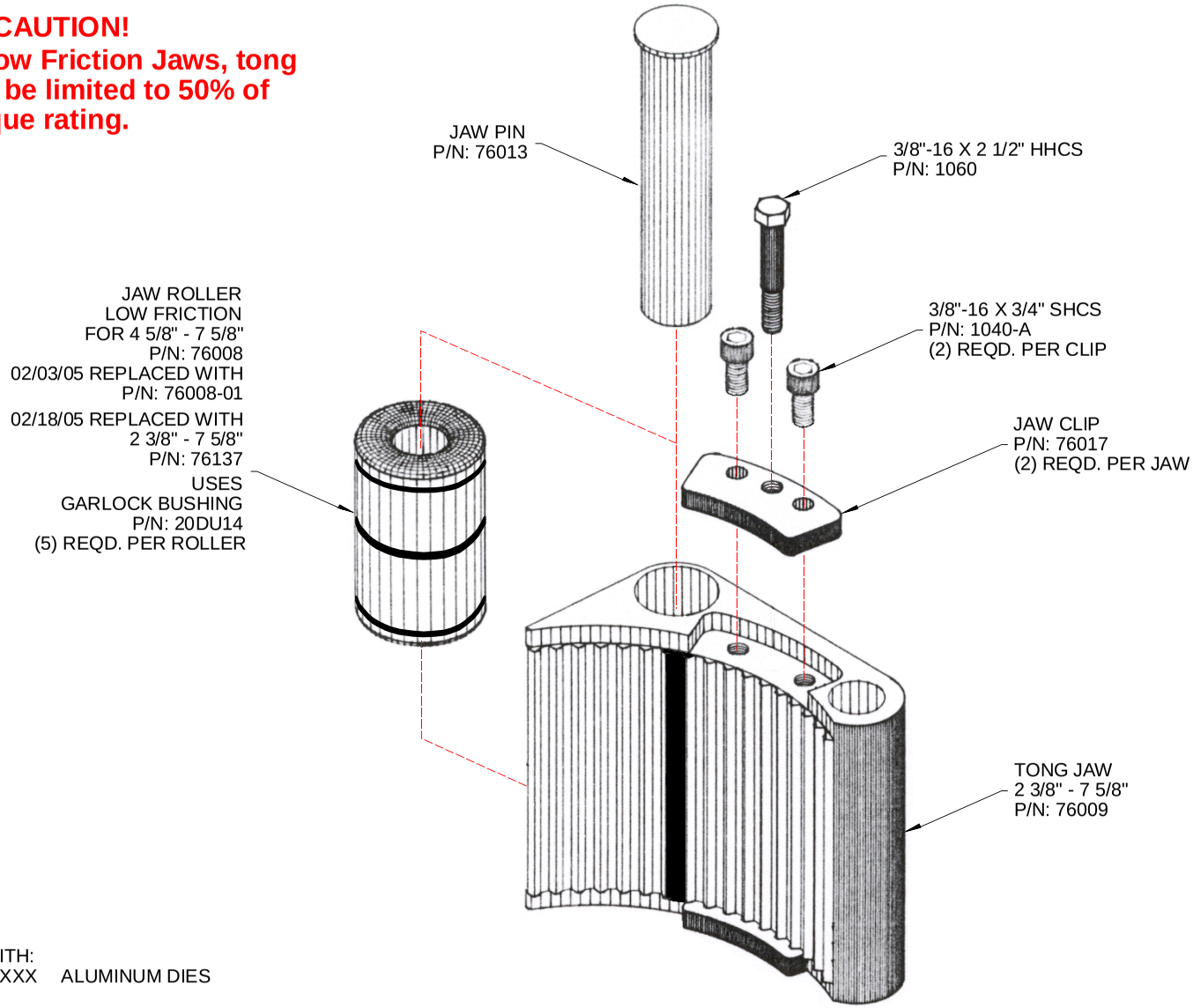
REV. #	LOG #	DATE
2		04/18/05

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625UHT\Jaw CJ-LF-76A rev2.wpg

CAUTION!
When using Low Friction Jaws, tong torque should be limited to 50% of maximum torque rating.



FOR USE WITH:
BUCA7625XXXX ALUMINUM DIES

7 5/8" UHT TONG
LOW FRICTION JAW ASSEMBLY

2 3/8" - 7 5/8" ASSEMBLY NO. CJ-LF-76B

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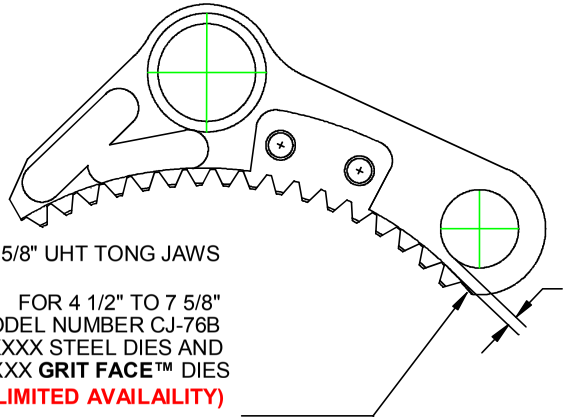
REV. #	LOG #	DATE
5		02/15/07

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625UHT\Jaw CJ-LF-76B rev5.wpg

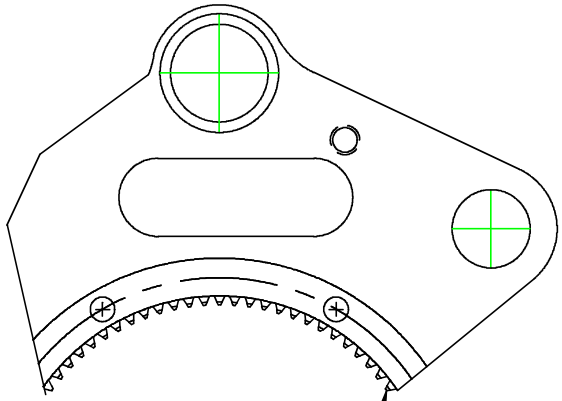


CLE7625 7 5/8" UHT TONG JAWS

FOR 4 1/2" TO 7 5/8"
JAW MODEL NUMBER CJ-76B
ACCEPTS BUC7625XXXX STEEL DIES AND
ACCEPTS BB7625XXXX **GRIT FACE™** DIES
(BB7625XXXX HAVE A LIMITED AVAILAILITY)

0.139 INCHES
REF DIM
DEFINES
JAW SIZE

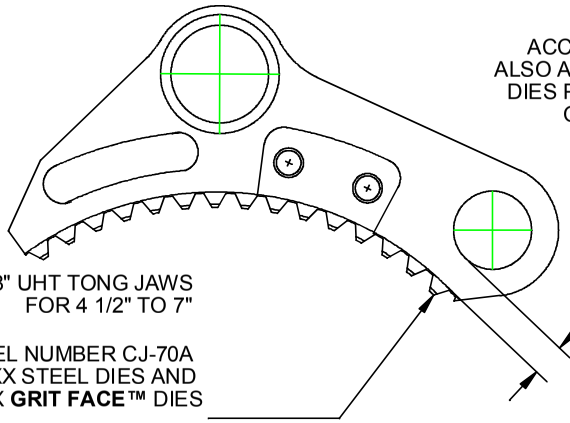
FOR 2 3/8" TO 7 5/8"
JAW MODEL NUMBER CJ-LF-76B
ACCEPTS BUCA7625XXXX ALUMINUM DIES
PROVIDED TORQUE IS LIMITED TO 50%
OF TONG'S MAXIMUM TORQUE RATING



CLE7625 7 5/8" UHT TONG JAWS

FOR 2 3/8" TO 4 1/2"
JAW MODEL NUMBER CJ-76A
ACCEPTS BUC4500XXXX STEEL DIES AND
ACCEPTS BB4500XXXX **GRIT FACE™** DIES

FOR 2 1/16" TO 4 1/2"
JAW MODEL NUMBER CJ-LF-76A
ACCEPTS BUCA4500XXXX ALUMINUM DIES
ALSO ACCEPTS BUC4500 AND BB4500 SERIES
DIES PROVIDED TORQUE IS LIMITED TO 50%
OF TONG'S MAXIMUM TORQUE RATING



CLE7625 7 5/8" UHT TONG JAWS
FOR 4 1/2" TO 7"

0.428 INCHES
REF DIM
DEFINES
JAW SIZE

JAW MODEL NUMBER CJ-70A
ACCEPTS BUC7000XXXX STEEL DIES AND
ACCEPTS BB7000XXXX **GRIT FACE™** DIES

JAW MODEL NUMBER CJ-LF-70A
ACCEPTS BUCA7000XXXX ALUMINUM DIES
ALSO ACCEPTS BUC7000 AND BB7000 SERIES
DIES PROVIDED TORQUE IS LIMITED TO 50%
OF TONG'S MAXIMUM TORQUE RATING

(ALL TYPES OF 7000 SERIES HAVE A LIMITED AVAILAILITY)

CLE7625 JAW COMPARISON

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2		02/15/07
REV. #	LOG #	DATE

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625UHTJaw Comparison rev2.wpg

Item #	Qty.	Part Number	Part Name
1	1	SEE CHART	LEFT D.T. JAW WELDMENT
2	1	SEE CHART	RIGHT D.T. JAW WELDMENT
3	4	SEE CHART	DOVETAIL STRIP DIE
4	2	76013	TONG JAW PIN
5	2	76014	TONG JAW ROLLER
6	2	1060	3/8"-16 x 2 1/2" HHCS
7	4	234	3/8"-16 x 1/2" SHCS

FOR MANUFACTURE STARTING 04/19/05

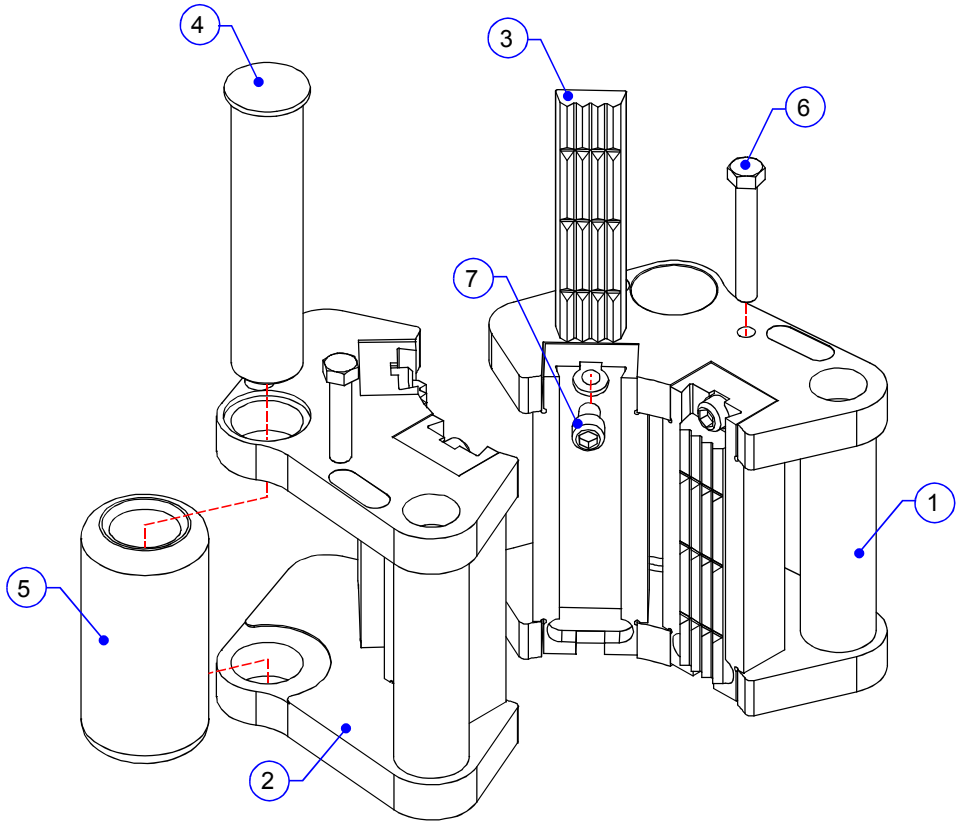
	Size	Jaw Set Assembly Number with Reg. Pin	Left Jaw Weldment Part Number	Right Jaw Weldment Part Number	Dovetail Strip Die Part Number
3	2 7/8"	CJDT78X02875	76X2875L	76X2875R	DTI4004
3	3 1/8"	CJDT78X03125	76X3125L	76X3125R	DTI4004
3	3 3/8"	CJDT78X03375	76X3375L	76X3375R	DTI4004
3	3 1/2"	CJDT78X03500	76X3500L	76X3500R	DTI4004
3	4"	CJDT78X04000	76X4000L	76X4000R	DTI4004
	4 1/2"	CJDT78X04500	76X4500L	76X4500R	DTI4004 3

	Size	Jaw Set Assembly Number with Reg. Pin	Left Jaw Weldment Part Number	Right Jaw Weldment Part Number	Dovetail Strip Die Part Number
3	5"	CJDT78X05000	76X5000L	76X5000R	DTI1602
	5 1/2"	CJDT78X05500	76X5500L	76X5500R	DTI1602
3	6"	CJDT78X06000	76X6000L	76X6000R	DTI1602
3	6 5/8"	CJDT76X06625	76X6625L	76X6625R	DTI1602
	7"	CJDT76X07000	76X7000L	76X7000R	DTI1602
	7 5/8"	CJDT76X07625	76X7625L	76X7625R	DTI1602

3 MANUFACTURE BEGINNING 11/19/07:
CJDT76X SIZES 2 7/8" THRU 6" ARE REPLACED WITH CJDTLF78X AND CJDT78X

FOR MANUFACTURE STARTING 11/22/05

Size	Jaw Set Assembly Number with Reg. Pin	Solid Left Jaw Part Number	Solid Right Jaw Part Number	Dovetail Strip Die Part Number
7 5/8"	CJDT76X07625	76212-7625L	76212-7625R	DTI1602



7 5/8" UHT TONG DOVETAIL JAW SET ASSEMBLY

SEE CHART FOR ASSEMBLY NUMBERS

Rev.	Date	Description
3	12/12/07	Corrected Die PN for 4 1/2" Jaw from DTI4001 to DTI4004.
		Added sizes 2 7/8", 3 1/8", 3 3/8", 3 1/2", 4", 5", 6" & 6 5/8"
		Added Note regarding Mfg. beginning 11/19/07 for sizes 2 7/8 thru 6".

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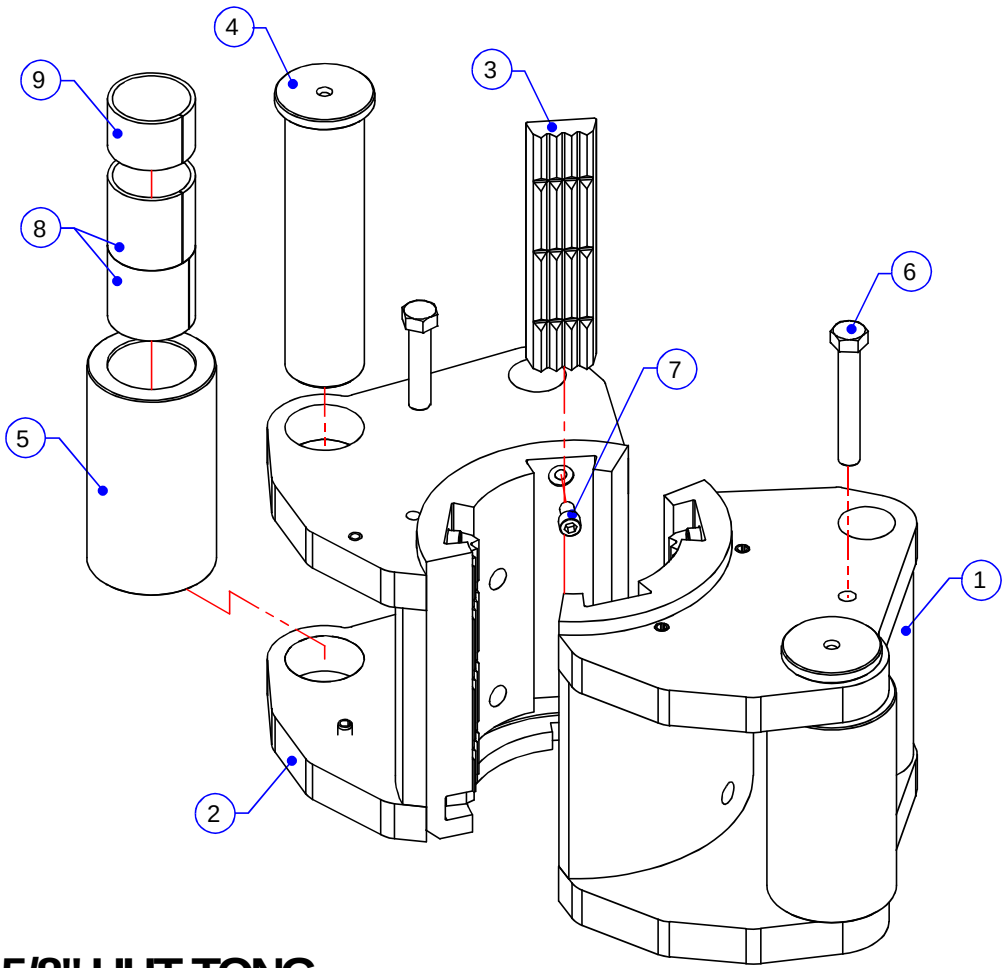
REV. #	LOG #	DATE
3		12/12/07

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625UHT\Jaw DT rev3.wpg

Item #	Qty.	Part Number	Part Name
1	1	SEE CHART	LEFT D.T. JAW WELDMENT
2	1	SEE CHART	RIGHT D.T. JAW WELDMENT
3	4	SEE CHART	DOVETAIL STRIP DIE
4	2	78203	TONG JAW PIN
5	2	78204	TONG JAW ROLLER
6	2	1060	3/8"-16 x 2 1/2" HHCS
7	4	213A	1/4"-20 x 3/8" SHCS
8	4	22DU24	GARLOCK BUSHING
9	2	22DU16	GARLOCK BUSHING

FOR MANUFACTURE STARTING 11/19/07

Size	*Jaw Set Assembly Number with Reg. Pin*	*Left Jaw Weldment Part Number*	*Right Jaw Weldment Part Number*	*Dovetail Strip Die Part Number*
2 3/8"	CJDTLF78X02375	78X2375L	78X2375R	DTI1602
2 7/8"	CJDTLF78X02875	78X2875L	78X2875R	DTI1602
3 1/8"	CJDTLF78X03125	78X3125L	78X3125R	DTI1602
3 3/8"	CJDTLF78X03375	78X3375L	78X3375R	DTI1602
3 1/2"	CJDTLF78X03500	78X3500L	78X3500R	DTI1602



7 5/8" UHT TONG DOVETAIL LOW FRICTION JAW SET ASSEMBLY

SEE CHART FOR ASSEMBLY NUMBERS

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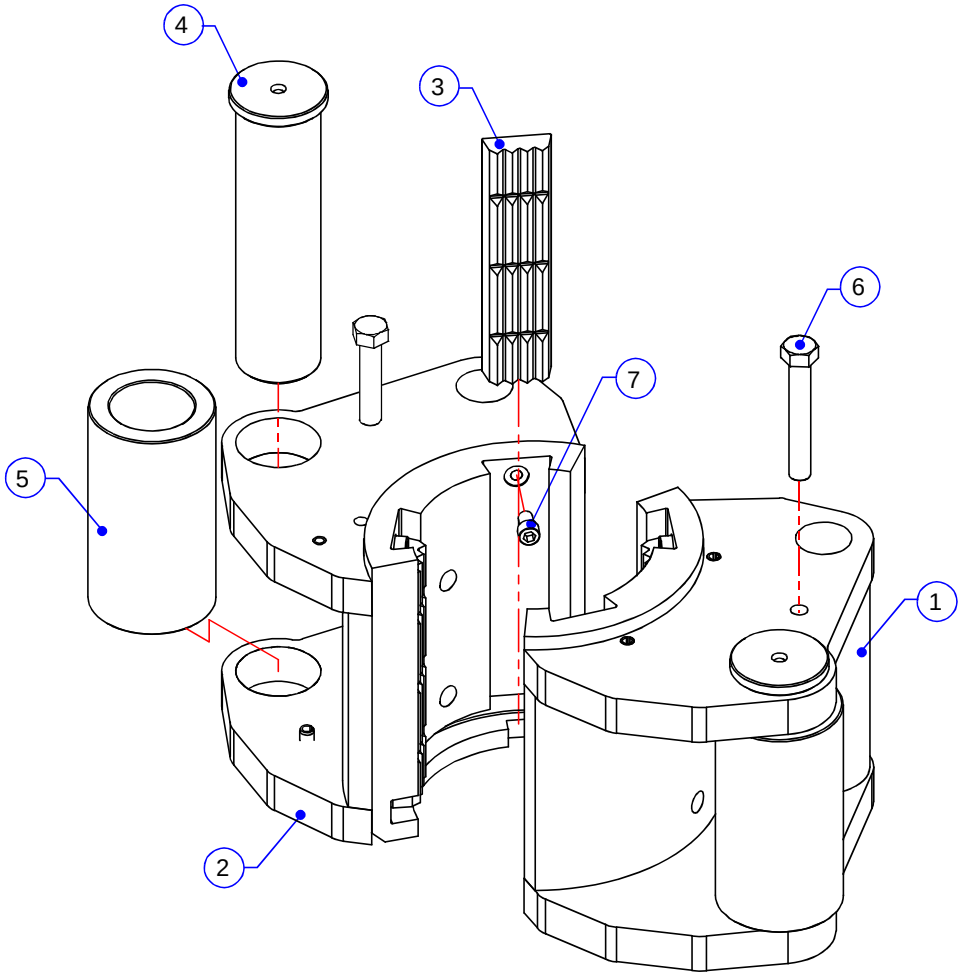
		12/12/07
REV. #	LOG #	DATE

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625UHT\Jaw DTLF78X.wpg

Item #	Qty.	Part Number	Part Name
1	1	SEE CHART	LEFT D.T. JAW WELDMENT
2	1	SEE CHART	RIGHT D.T. JAW WELDMENT
3	4	SEE CHART	DOVETAIL STRIP DIE
4	2	78202	TONG JAW PIN
5	2	78201	TONG JAW ROLLER
6	2	1060	3/8"-16 x 2 1/2" HHCS
7	4	213A	1/4"-20 x 3/8" SHCS

FOR MANUFACTURE STARTING 11/19/07

Size	*Jaw Set Assembly Number with Reg. Pin*	*Left Jaw Weldment Part Number*	*Right Jaw Weldment Part Number*	*Dovetail Strip Die Part Number*
4"	CJDT78X04000	78X4000L	78X4000R	DTI1602
4 1/2"	CJDT78X04500	78X4500L	78X4500R	DTI1602
5"	CJDT78X05000	78X5000L	78X5000R	DTI1602
5 1/2"	CJDT78X05500	78X5500L	78X5500R	DTI1602
6"	CJDT78X06000	78X6000L	78X6000R	DTI1602



7 5/8" UHT TONG DOVETAIL JAW SET ASSEMBLY

SEE CHART FOR ASSEMBLY NUMBERS

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		12/12/07
REV. #	LOG #	DATE

REF: P:\Manuals\Equip Manuals\Dwgs\CLE7625UHT\Jaw DT78X.wpg

SECTION 10 UHT BACKUP ILLUSTRATIONS & MOUNTING KIT ILLUSTRATIONS

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7 5/8" UHT BACKUP TOP VIEW WITHOUT TOP PLATE ..... 10 - 4
7 5/8" UHT BACKUP BOTTOM VIEW ..... 10 - 5
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BUC7623 / CYLINDER ASSEMBLY *(2nd Generation)* ..... 10 - 7
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7 5/8" UHT BACKUP MOUNTING KIT *(Assembly No. MK7600)* ..... 10 - 9
VALVE BANK ASSEMBLY *(2nd Generation)* ..... 10 - 10
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UHT BACKUP PLUMBING *(1st Generation, Sht. 1)* ..... 10 - 12
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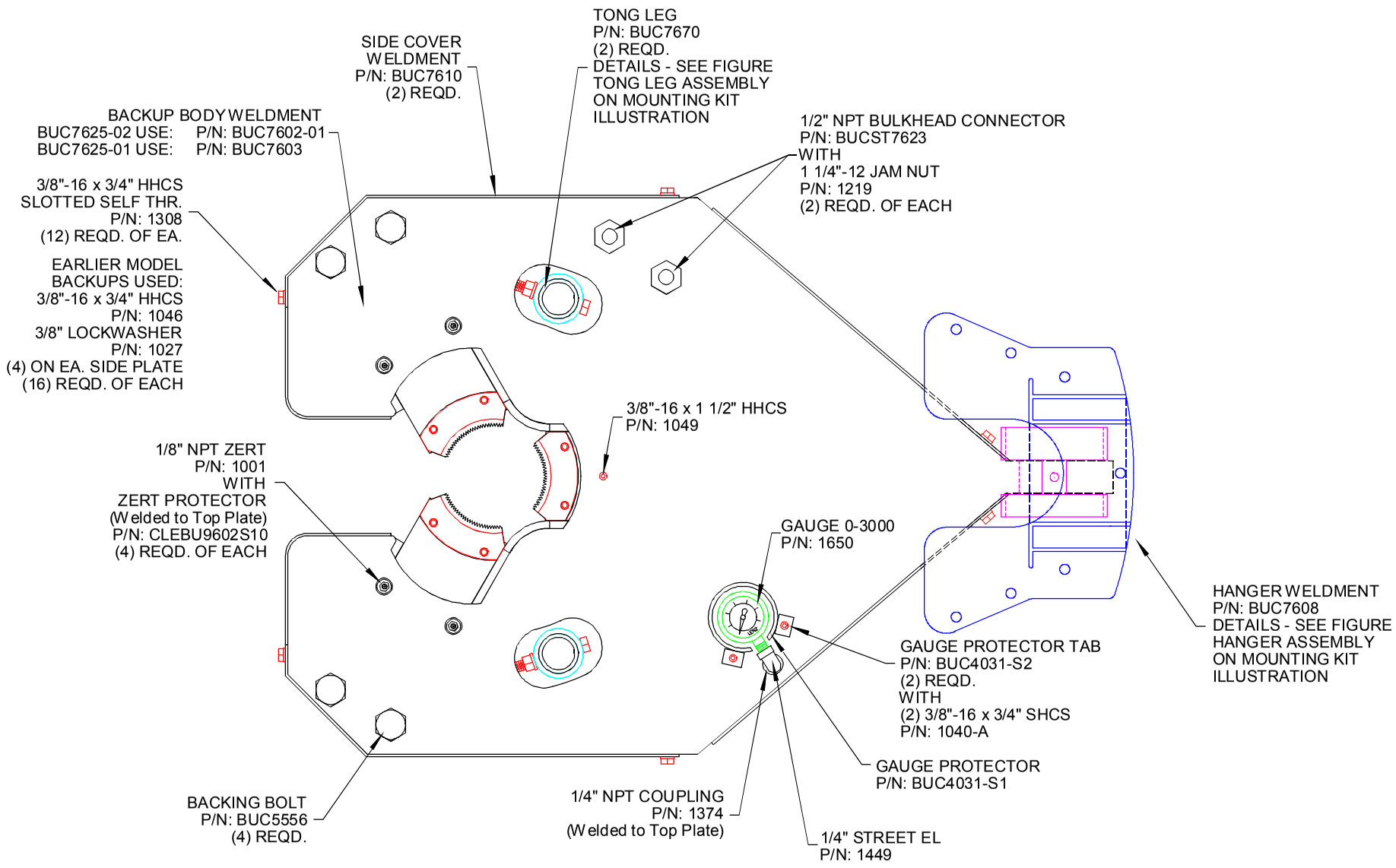
HYDRAULIC SCHEMATIC *(2nd Generation)* ..... 10 - 15



7 5/8" UHT BACKUP
TOP VIEW

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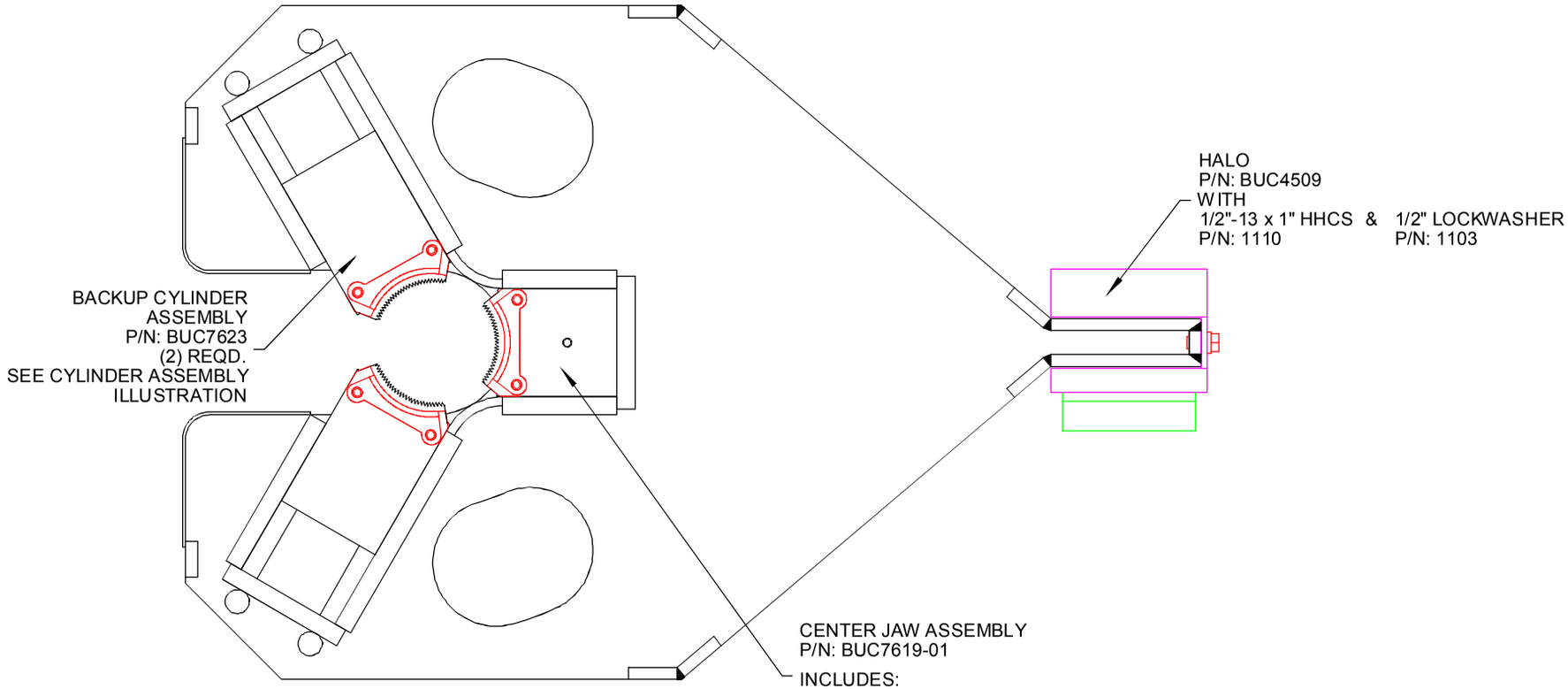
REV. #	LOG #	DATE
2		02/07/05

REF: S:\Equip Manuals\Dwgs\BUC7625\Top View rev2.wpg



7 5/8" UHT BACKUP
TOP VIEW WITHOUT TOP PLATE

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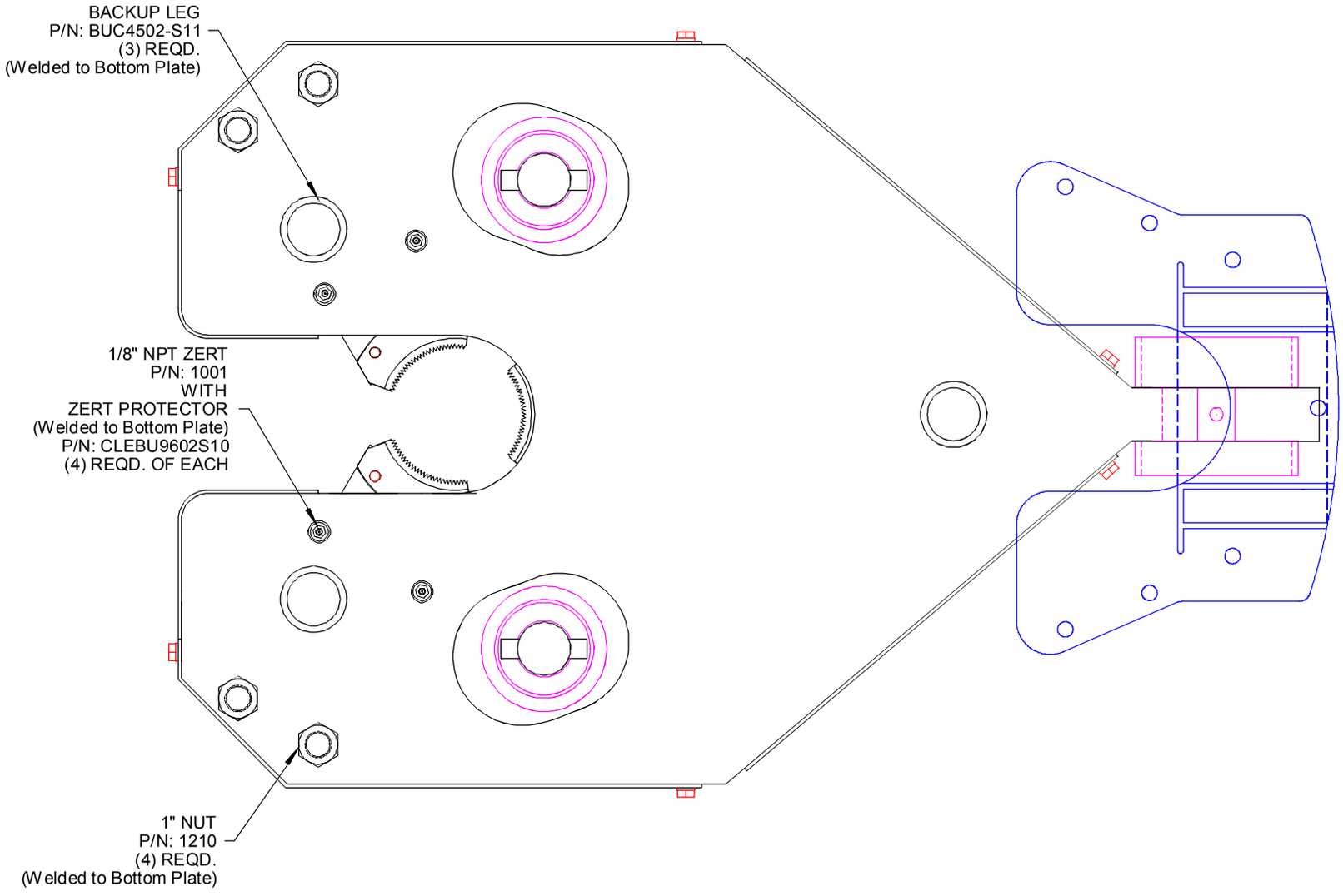
REV. #	LOG #	DATE
1		06/11/04

REF: S:\Equip Manuals\Dwgs\BUC7625\Top View wo Plate rev1.wpg



7 5/8" UHT BACKUP
BOTTOM VIEW

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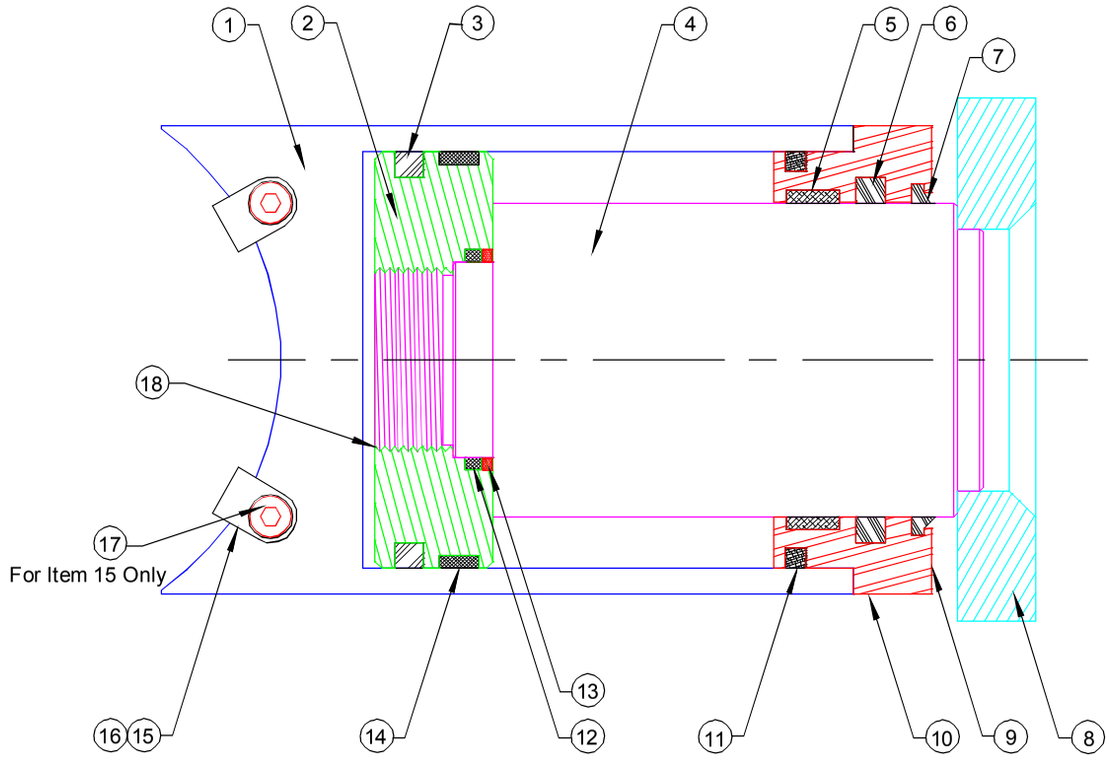
		03/29/04
REV. #	LOG #	DATE

REF: S:\Equip Manuals\Dwgs\BUC7625\Bottom View.wpg

• SEAL KIT NO. ASAP2226

BILL OF MATERIALS			
Item	Qty.	P/N	Description
1	1	BUC7631	Cylinder Housing
2	1	BUC5525	Piston
• 3	1	37504750	Polypack 4 3/4" x 5 1/2" x 3/8"
4	1	BUC5526-S2	Rod
• 5	1	W47500625	Wearband
• 6	1	25004500	Polypack 4 1/2" x 5" x 1/4"
• 7	1	959-41	Rod Wiper
8	1	BUC7626-S1	Backing Plate (Welded to Item 4)
9	4	256	5/8"-11 x 1 1/4" SHCS
10	1	BUC5528	Gland
• 11	1	25005000	Polypack 5" x 5 1/2" x 1/4"
• 12	1	12502625	Polypack 2 5/8" x 2 7/8" x 1/8"
• 13	1	8-231	Backup Ring
• 14	1	W55000500	Wearband 5 1/2" OD
15	2	BUC5520	Retainer Clip Top
16	2	BUC5520	Retainer Clip Bottom (Welded to Item 1)
17	2	1040-A	3/8"-16 x 3/4" SHCS
18	1	1008-B	1/4"-20 x 1/4" Set Screw



7 5/8" UHT BACKU P CYLINDER ASSEMBLY

1st GENERATION
ASSEMBLY NO. BUC7623

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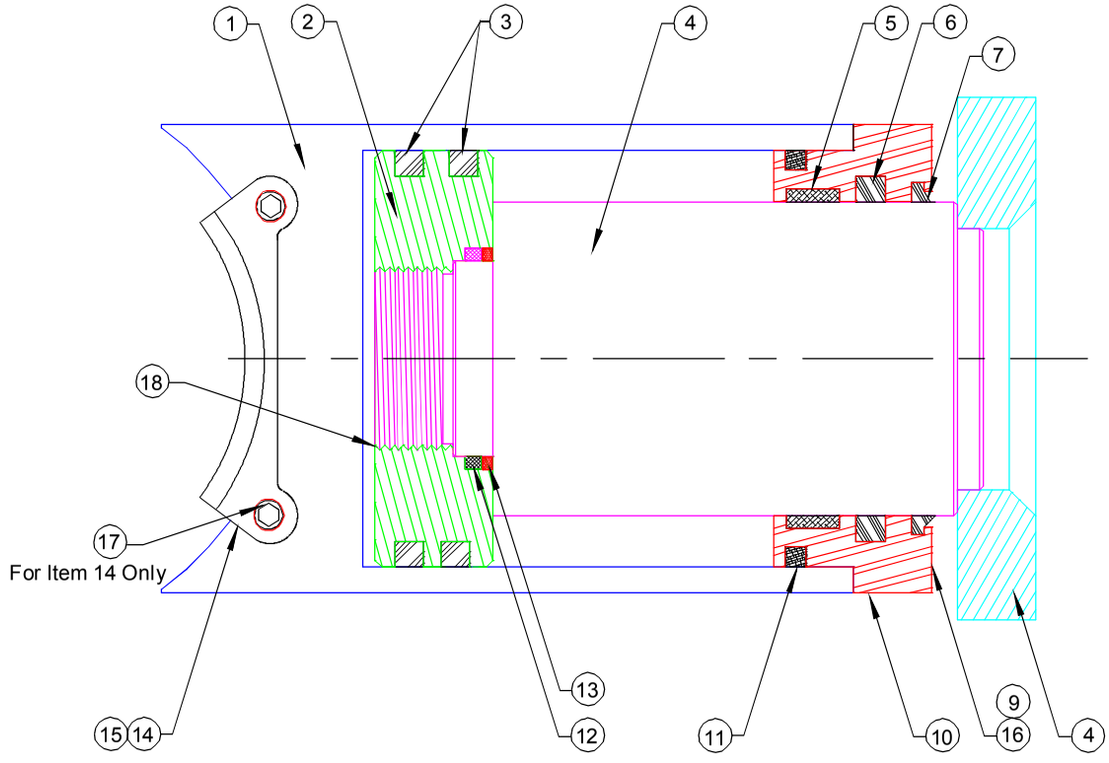
		03/29/04
REV. #	LOG #	DATE

REF: S:\Equip Manuals\Dwgs\BUC7625\Cylinder 1st.wpg

• SEAL KIT NO. ASAP2226

BILL OF MATERIALS			
Item	Qty.	P/N	Descriptio n
1	1	BUC7665	Cylinder Housing Weldment
2	1	BUC5525	Piston
• 3	2	37504750	Polypack 4 3/4" x 5 1/2" x 3/8"
4	1	BUC7626	Rod Backing Plate Weldment
• 5	1	W47500625	Wearband
• 6	1	25004500	Polypack 4 1/2" x 5" x 1/4"
• 7	1	959-41	Rod Wiper
8	- -	- - - - -	- - - - -
9	4	256	5/8"-11 x 1 1/4" SHCS
10	1	BUC5528	Gland
• 11	1	25005000	Polypack 5" x 5 1/2" x 1/4"
• 12	1	12502625	Polypack 2 5/8" x 2 7/8" x 1/8"
• 13	1	8-231	Backup Ring
14	1	CM7656-01	Die Clip (Top)
15	1	CM7656-01	Die Clip (Bottom) (Welded to Item 1)
16	4	1005-A	3/16" x 1/2" Roll Pin
17	2	1040-A	3/8"-16 x 3/4" SHCS
18	1	1008-B	1/4"-20 x 1/4" Set Screw



7 5/8" UHT BACKUP CYLINDER ASSEMBLY

2nd GENERATION

ASSEMBLY NO. BUC7623

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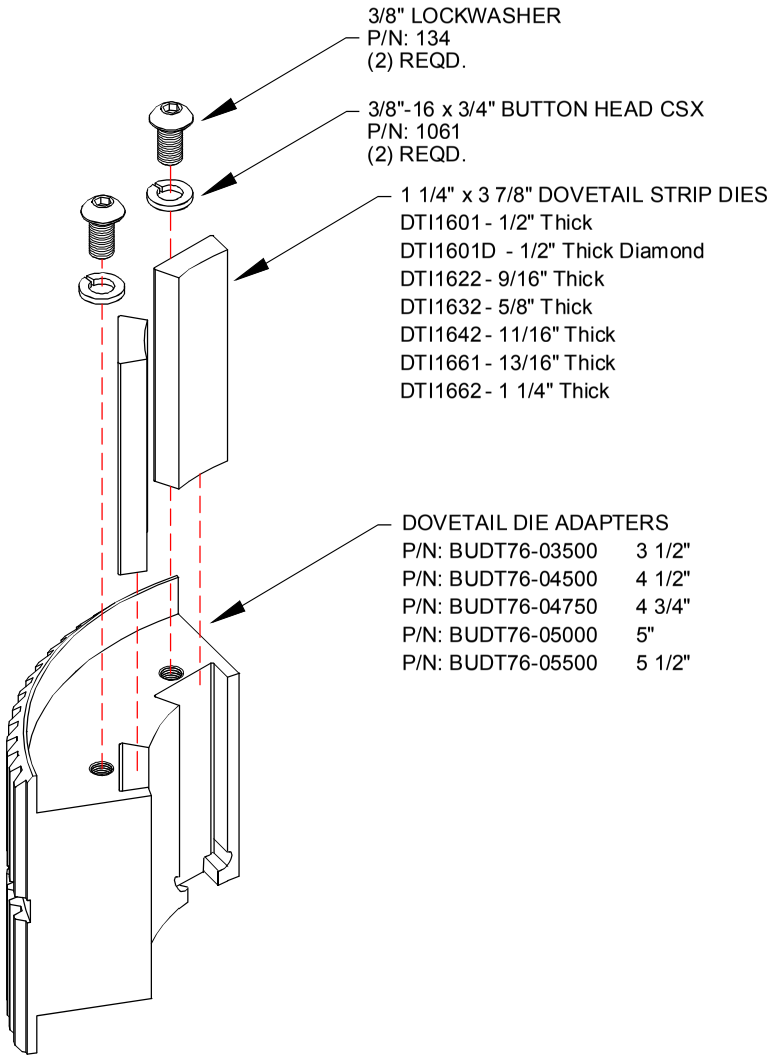
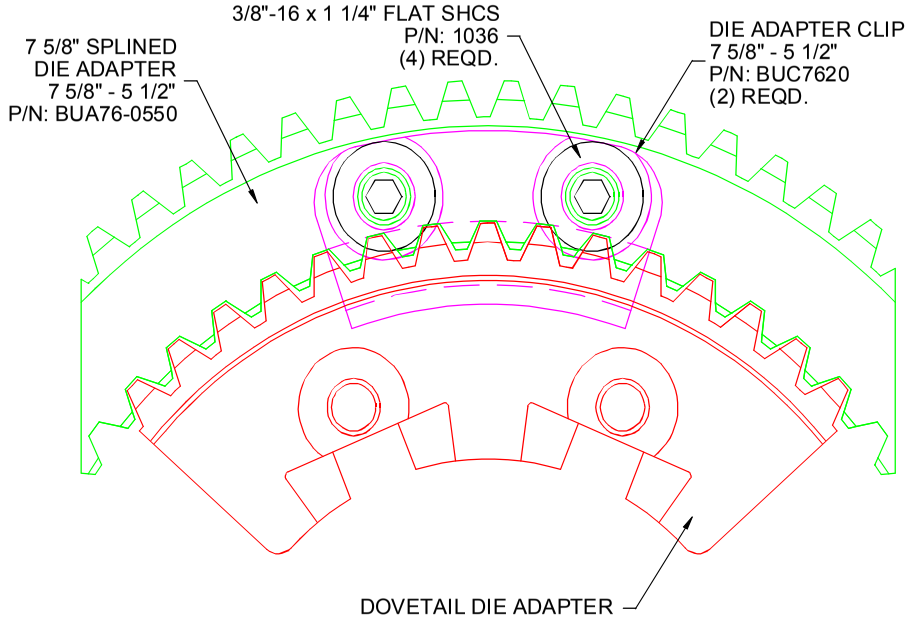
		03/29/04
REV. #	LOG #	DATE

REF: S:\Equip Manuals\Dwgs\BUC7625\Cylinder 2nd.wpg





7 5/8" BACKUP
DOVETAIL DIE ADAPTER

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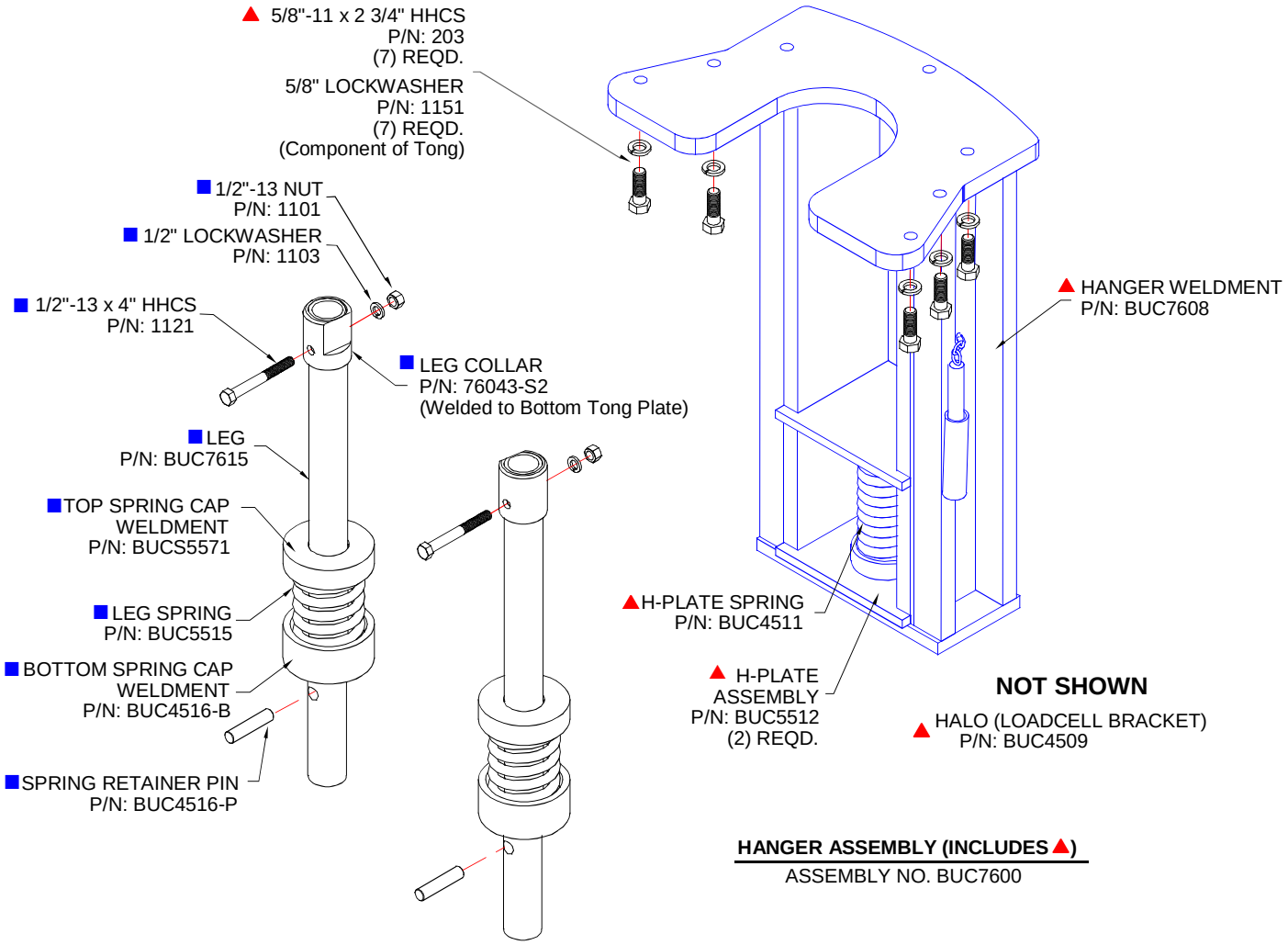
REV. #	LOG #	DATE
1		02/07/05

REF: S:\Equip Manuals\Dwgs\BUC7625\Die Adapter rev1.wpg

NOT SHOWN:

SEE VALVE BANK ASSEMBLY

VALVE PACKAGE
P/N: VP7625UHT



LEG ASSEMBLY (INCLUDES ■)

ASSEMBLY NO. BUC7670

HANGER ASSEMBLY (INCLUDES ▲)

ASSEMBLY NO. BUC7600

MOUNTING KIT ASSEMBLY
7 5/8" UHT BACKUP
TO 7 5/8" UHT TONG

ASSEMBLY NO. MK7600

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		03/17/04
REV. #	LOG #	DATE

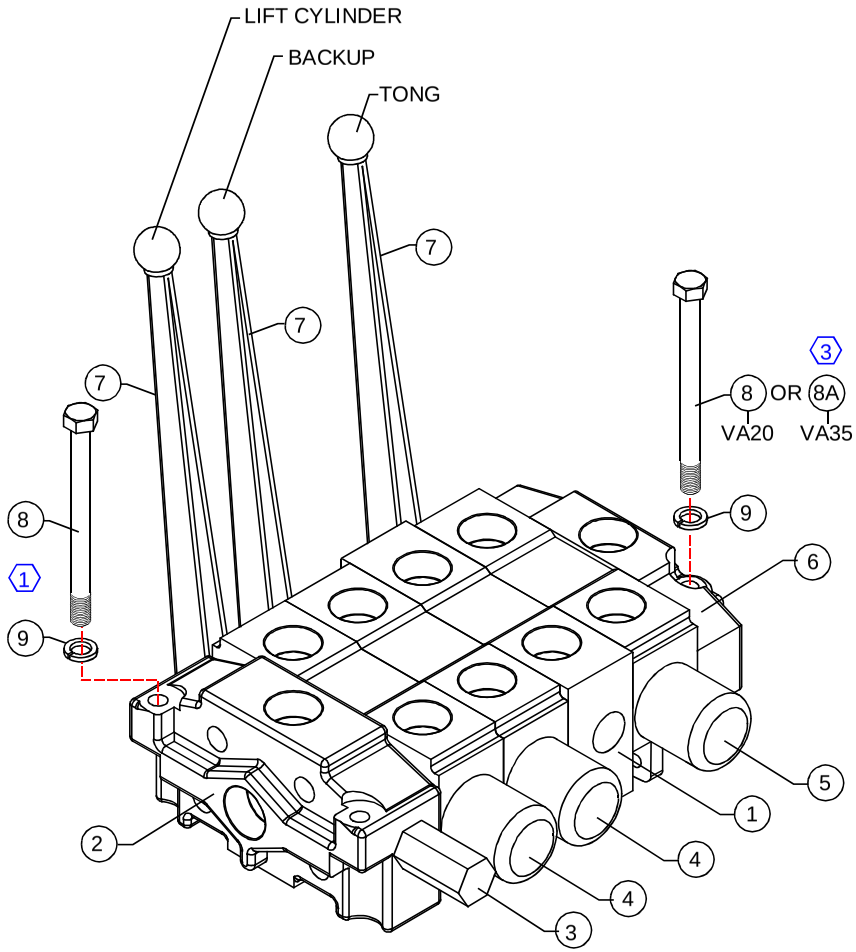
REF: P:\Manuals\Equip Manuals\Dwgs\BUC7625\Mounting Kit.wpg

A20 VALVE BANK ASSEMBLY

Item #	Qty.	Part Number	Description
1	1	55201	CONTROL VALVE ASSEMBLY - MODIFIED VA20-WDA3
			(MFG. BEFORE 04/15/04)
2 OR	1	VA20-MOD	WORK SECTION (MFG. AFTER 04/15/04)
5 6 OR	1	86049	LOGIC VALVE ASSEMBLY (MFG. AFTER 05/2006)
2	1	VA20-AA440	INLET VALVE W/O RELIEF
3	1	VA20-MRV-1	RELIEF CARTRIDGE
4	2	VA20-DA3	WORK SECTION
5	1	VA20-MA3	WORK SECTION
6	1	VA20-TR44	OUTLET SECTION
1 7	3	A20-V1526K-8	A20 8" HANDLE
1 8	3	1072	HHCS 3/8"-16 x 3 3/4" (COMPONENT OF KIT P/N: 4 BANK)
9	3	134	LOCKWASHER 3/8" (COMPONENT OF KIT P/N: 4 BANK)

A35 VALVE BANK ASSEMBLY

Item #	Qty.	Part Number	Description
1	1	14213	CONTROL VALVE ASSEMBLY - MODIFIED VA35-WDA4
			(MFG. BEFORE 04/15/04)
2 OR	1	VA35-MOD	WORK SECTION ASSEMBLY (MFG. AFTER 04/15/04)
5 6 OR	1	86049	LOGIC VALVE ASSEMBLY (MFG. AFTER 05/2006)
2	1	VA35-AA440	INLET VALVE W/O RELIEF
3	1	DVG35-HMRV 4	RELIEF CARTRIDGE
4	2	VA35-DA4	WORK SECTION
5	1	VA35-MA4	WORK SECTION
6	1	VA35-TR55	OUTLET SECTION
7	3	A35-V1526K-8	A35 8" HANDLE
1 8	2	X2-40 3	HHCS 1/2"-13 x 4 1/4" 3
3 8A	1	X2-45	HHCS 1/2"-13 x 4 1/2"
1 9 3	3	1103	LOCKWASHER 1/2"



Rev.	Date	Description
6	11/28/07	Item 1 - Replaced 86051 & 86052 w/Assy. 86049 for Mfg. after 05/2006.
5	10/29/07	Item 1 - Added 86051 & 86052 for Production after 05/2006.
4	08/19/05	Item 3 - Chg.PN from A35-MRV-1 to DVG35-HMRV; ECN#05-0064.
3	12/13/04	Item 8 - Chg. Length from 5" to 4 1/4". PN from X2-79 to X2-40.
		Item 8A - Added Part. Item 9 - Chg. Qty. from 2 to 3.
2	10/21/04	Item 1 - Added VA20-MOD & VA35-MOD for Production after 04/15/04.
1	06/10/02	Item 8 & 9 - Added Part.

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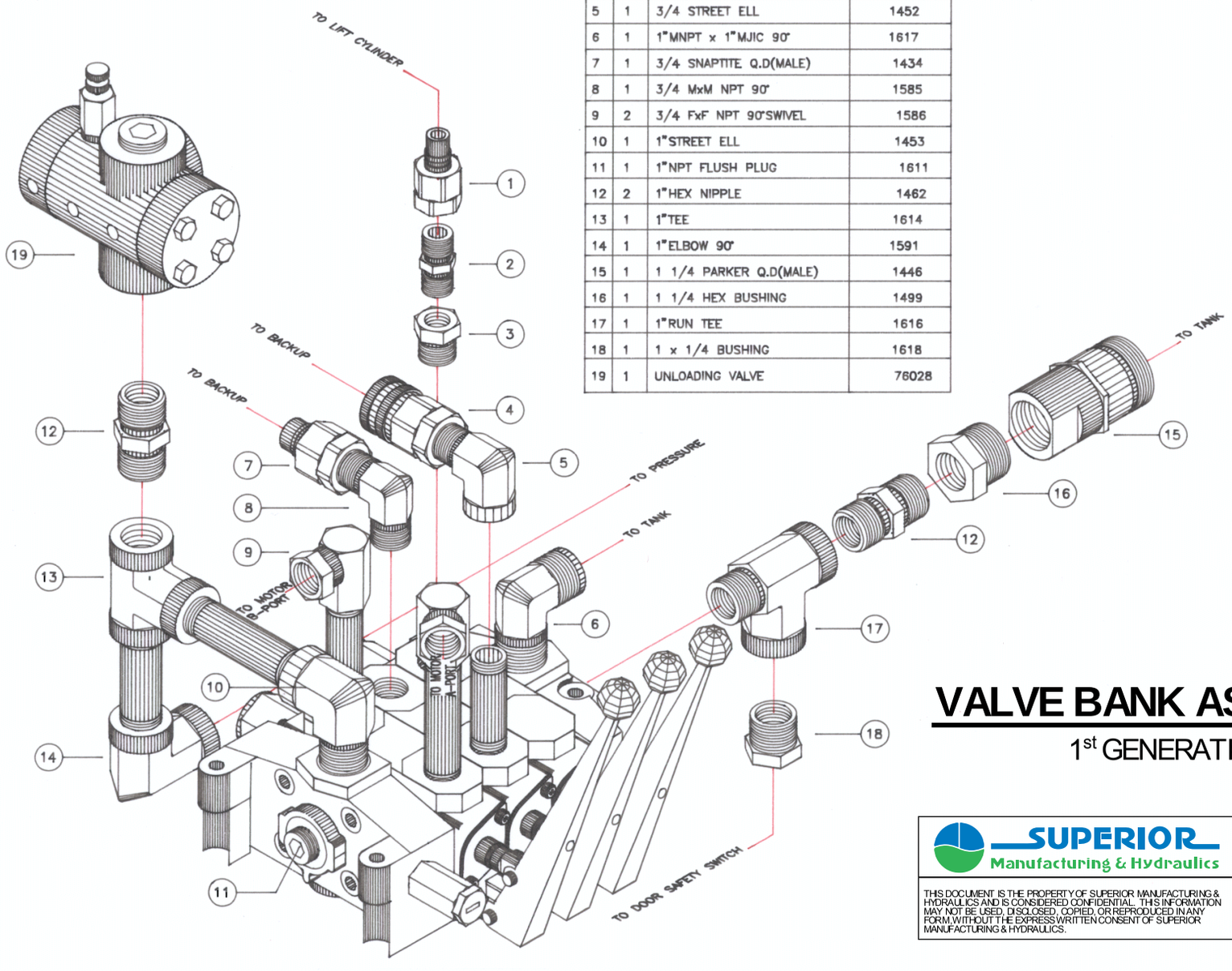
REV. #	LOG #	DATE
6		11/28/07

REF: P:\Manuals\Equip Manuals\Dwgs\Valves\Valve Bank 4 rev6.wpg

VALVE BANK ASSEMBLY



	QTY.	DESCRIPTION	PART NUMBER
1	1	1/2 SNAPTITE Q.D(MALE)	1431
2	1	1/2 HEX NIPPLE	1460
3	1	3/4 x 1/2 BUSHING	1495
4	1	3/4 SNAPTITE Q.D(FEMALE)	1433
5	1	3/4 STREET ELL	1452
6	1	1"MNPT x 1"MJIC 90°	1617
7	1	3/4 SNAPTITE Q.D(MALE)	1434
8	1	3/4 MxM NPT 90°	1585
9	2	3/4 FxF NPT 90°SWIVEL	1586
10	1	1"STREET ELL	1453
11	1	1"NPT FLUSH PLUG	1611
12	2	1"HEX NIPPLE	1462
13	1	1"TEE	1614
14	1	1"ELBOW 90°	1591
15	1	1 1/4 PARKER Q.D(MALE)	1446
16	1	1 1/4 HEX BUSHING	1499
17	1	1"RUN TEE	1616
18	1	1 x 1/4 BUSHING	1618
19	1	UNLOADING VALVE	76028

VALVE BANK ASSEMBLY

1st GENERATION

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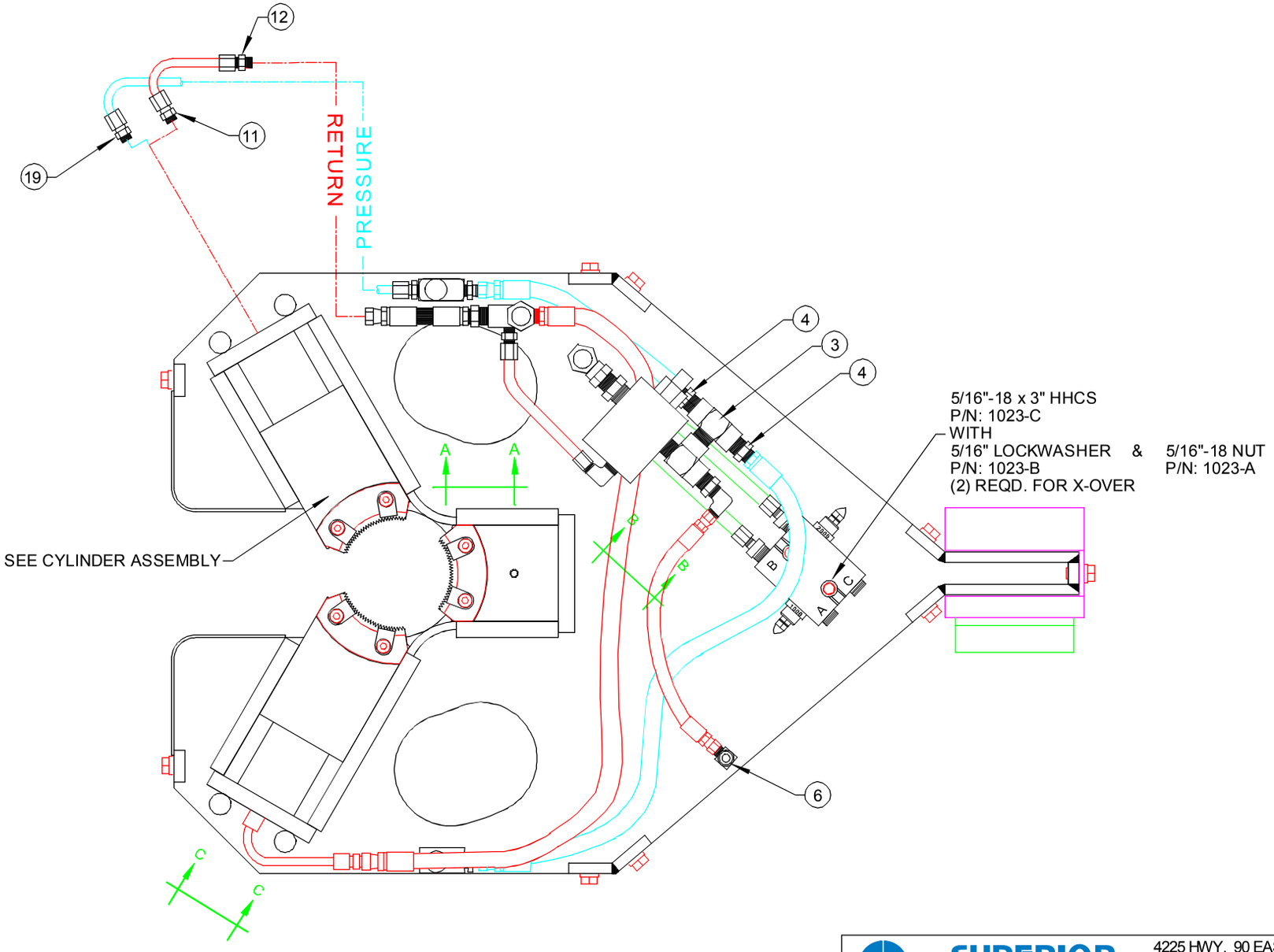
REV.#	LOG#	DATE
		12/21/01

REF: S:\Equip Manuals\Dwgs\BUC5500\Valve Bank 1st.wpg



UHT BACKUP PLUMBING

1st GENERATION

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		12/21/01

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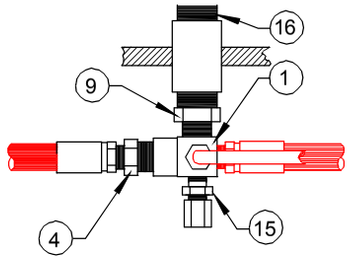
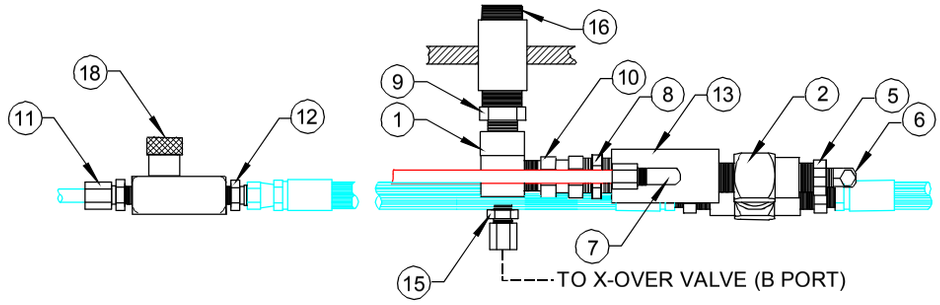
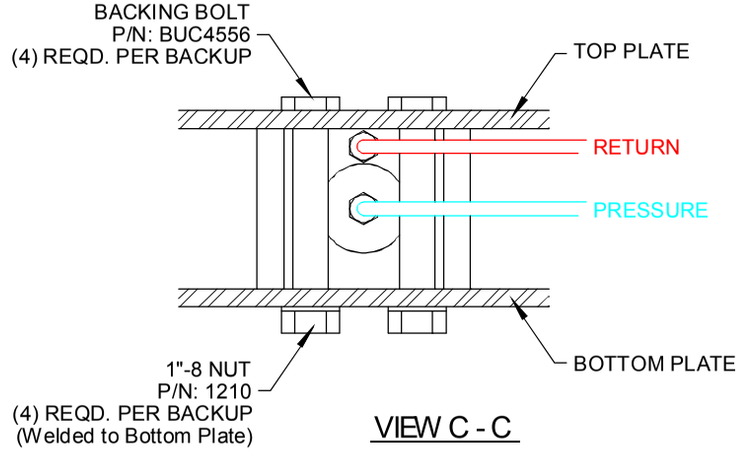


VIEW A - A

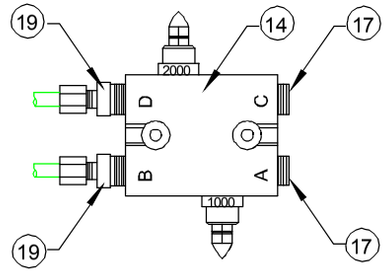


VIEW B - B

BILL OF MATERIALS			
Item	*Qty.*	*P/N*	*Description*
1	2	1450-B	1/2" Street El (Square Body)
2	1	1598	1/2" Run Tee
3	1	1596	1/2" Branch Tee
4	3	1491	1/2" x 3/8" Reducer Bushing
5	1	1490	1/2" x 1/4" Reducer Bushing
6	2	1576	1/4" MNPT x MJIC 90° El
7	1	1577	1/4" MNPT x 3/8" Tube 90° El
8	1	1460	1/2" Hex Nipple
9	2	1495	3/4" x 1/2" Reducer Bushing
10	1	1571-B	1/2" M x FNPT 90° Str. Swvl. Adapter
11	3	1570-A	3/8" MNPT x 3/8" Tube Adapter
12	2	1570	3/8" MNPT x MJIC Adapter
13	1	BUC5524	Pilot Opr. Check Valve
14	1	1801	X-Over Relief - 127025
15	2	1564	1/4" MNPT x 3/8" Tube Str. Adapter
16	2	1610	3/4" Flush Plug
17	2	1609-A	1/2" Flush Plug
18	1	1800	Parker Flow Control F600
19	3	1571-A	1/2" MNPT x 3/8" Tube Adapter



VIEW C - C



TOP VIEW OF X-OVER VALVE

UHT BACKUP PLUMBING

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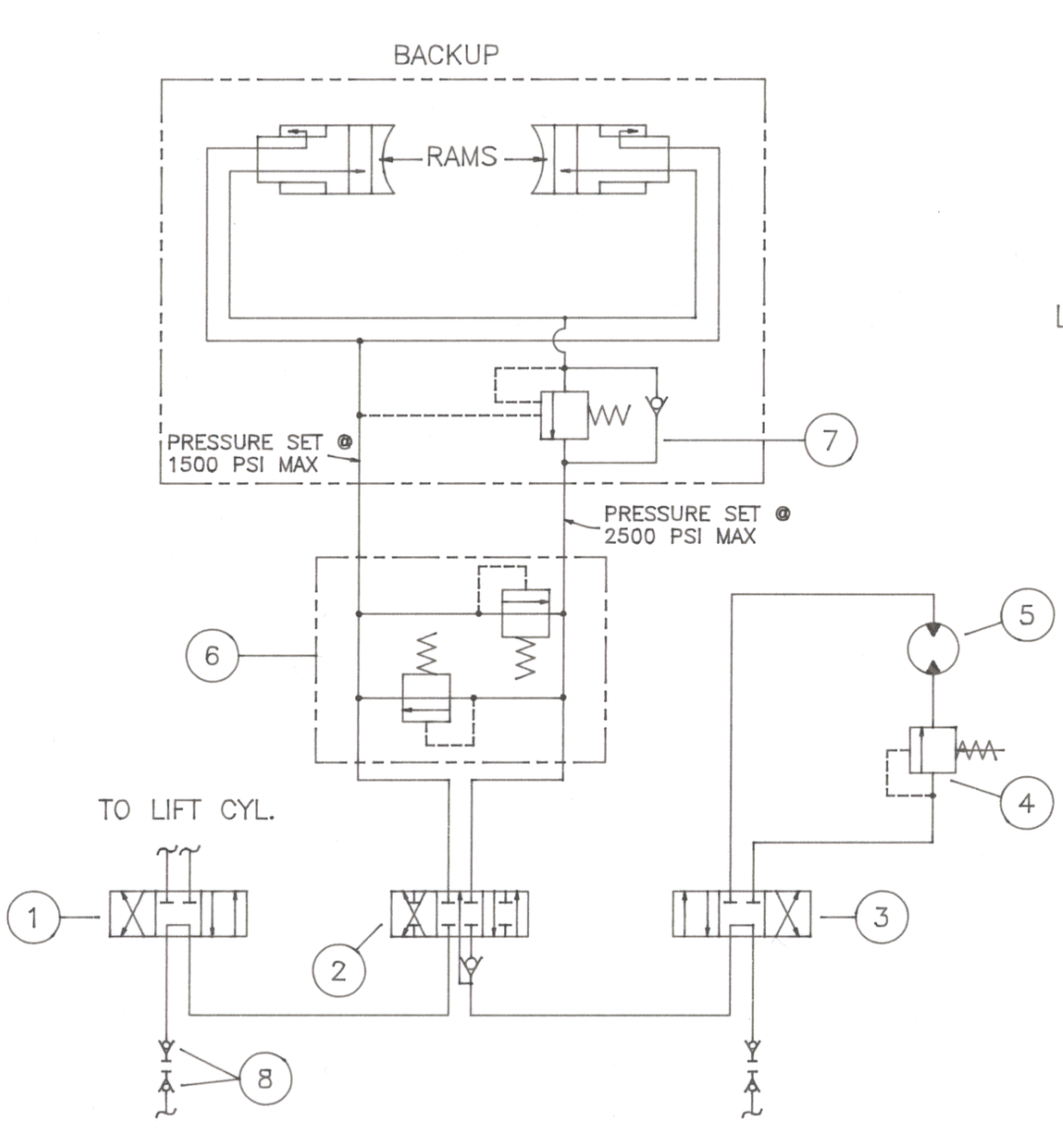

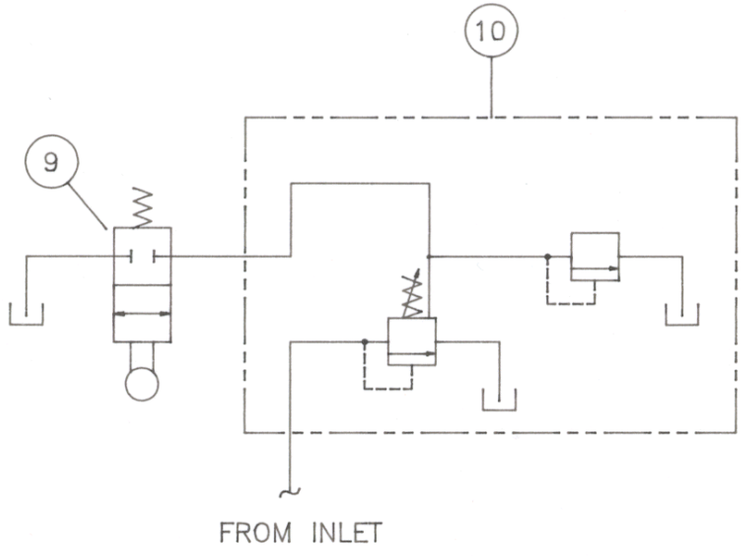

	QTY.	DESCRIPTION	PART NUMBER
1	1	A20 SA SECTION	VA20-SA3
2	1	A20 DA SECTION	VA20-DA3
3	1	A20 MA SECTION	VA20-MA3
4	1	DYNEX RELIEF VALVE	8821-06-3/4-25
5	1	RINEER MOTOR	GA015-061-015-30
6	1	RC SERIES DOUBLE RELIEF VALVE	127025 1/2
7	1	GRESEN CBV	MHB-030-LEAH-08B-43
8	4	QUICK DISCONNECT	PKR-6100
9	1	RACINE DOOR SWITCH	FD2-RTHT-102D
10	1	DYNEX DUMP VALVE	8827-06-1-25

UHT HYDRAULIC SCHEMATIC

1st GENERATION

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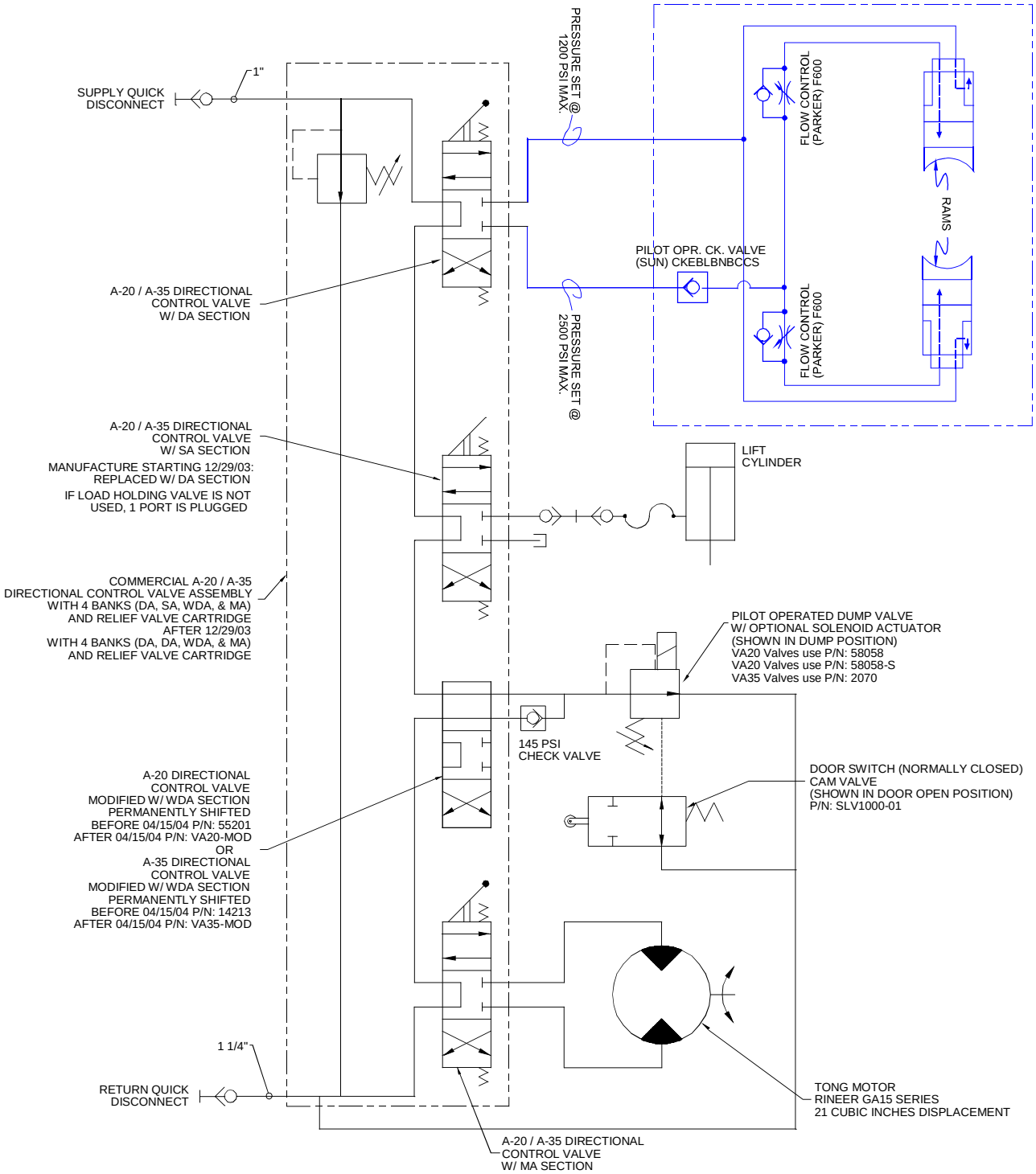
UHT TONG **UHT BACKUP**

SPECIAL NOTE: IF VALVE SECTION "COMMERCIAL SHEARING" DA-53 IS TO BE SUBSTITUTED, CYLINDER SPOOL MUST BE USED.


SUPPLY QUICK DISCONNECT
1"
PRESSURE SET @ 1200 PSI MAX.
FLOW CONTROL (PARKER) F600
RAMS
PILOT OPR. CK. VALVE (SUN) CKEBLBNBCCS
PRESSURE SET @ 2500 PSI MAX.
FLOW CONTROL (PARKER) F600
A-20 / A-35 DIRECTIONAL CONTROL VALVE W/ DA SECTION
A-20 / A-35 DIRECTIONAL CONTROL VALVE W/ SA SECTION
MANUFACTURE STARTING 12/29/03: REPLACED W/ DA SECTION
IF LOAD HOLDING VALVE IS NOT USED, 1 PORT IS PLUGGED
LIFT CYLINDER
COMMERCIAL A-20 / A-35 DIRECTIONAL CONTROL VALVE ASSEMBLY WITH 4 BANKS (DA, SA, WDA, & MA) AND RELIEF VALVE CARTRIDGE AFTER 12/29/03
WITH 4 BANKS (DA, DA, WDA, & MA) AND RELIEF VALVE CARTRIDGE
PILOT OPERATED DUMP VALVE W/ OPTIONAL SOLENOID ACTUATOR (SHOWN IN DUMP POSITION)
VA20 Valves use P/N: 58058
VA20 Valves use P/N: 58058-S
VA35 Valves use P/N: 2070
145 PSI CHECK VALVE
DOOR SWITCH (NORMALLY CLOSED) CAM VALVE (SHOWN IN DOOR OPEN POSITION)
P/N: SLV1000-01
A-20 DIRECTIONAL CONTROL VALVE MODIFIED W/ WDA SECTION PERMANENTLY SHIFTED
BEFORE 04/15/04 P/N: 55201
AFTER 04/15/04 P/N: VA20-MOD
OR
A-35 DIRECTIONAL CONTROL VALVE MODIFIED W/ WDA SECTION PERMANENTLY SHIFTED
BEFORE 04/15/04 P/N: 14213
AFTER 04/15/04 P/N: VA35-MOD
1 1/4"
RETURN QUICK DISCONNECT
TONG MOTOR
RINEER GA15 SERIES
21 CUBIC INCHES DISPLACEMENT
A-20 / A-35 DIRECTIONAL CONTROL VALVE W/ MA SECTION

BASIC HYDRAULIC SCHEMATIC

UHT TONG
UHT BACKUP

NOTE: NUMEROUS FITTINGS, HOSES, & NIPPLES ARE NOT ILLUSTRATED IN THIS SCHEMATIC

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REV. #	LOG #	DATE
3		12/13/05

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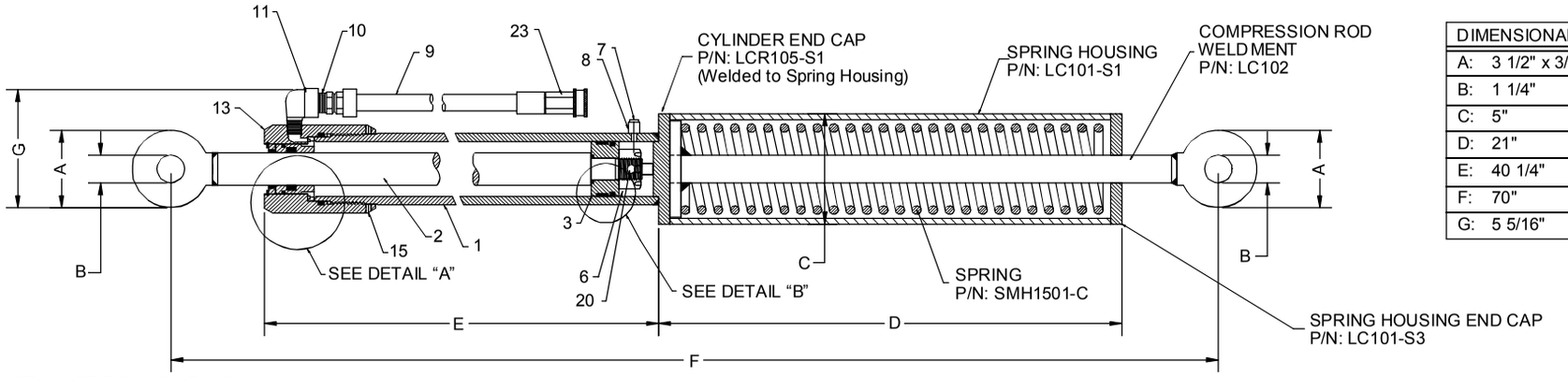
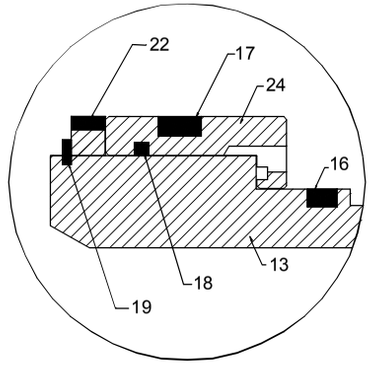


DIMENSIONAL DATA
A: 3 1/2" x 3/4"
B: 1 1/4"
C: 5"
D: 21"
E: 40 1/4"
F: 70"
G: 5 5/16"

• SEAL KIT P/N: ASAP100

BILL OF MATERIALS

Item	Qty.	Descriptio n	P/N
1	1	HYD/AIR CYLINDER BARREL	LCR105
2	1	CYLINDER ROD WELDMENT	LCR112
3	1	PISTON	LCR106
• 4	1	WEARBAND	W25000500
• 5	1	POLYPACK 2 1/8" x 2 1/2" x 3/16"	18702125
6	1	1"-12 SLOTTED HEX NUT	1209
7	1	1/2" FLUSH PLUG W/ 1/8" ORIFICE	1657
8	1	1/2" HALF COLLAR	1380
9	1	1/2" x 120" HOSE ASSY. MNPT x FJIC SWVL	LCR107-A
10	1	3/8" MNPT x 1/2" MJIC ADAPTER	1466
11	1	3/8" STREET EL W/ORIFICE	LCR109
12	---	----------	----------
13	1	GLAND CAP	LCR119
14	---	----------	----------
15	2	1/4"-20 x 3/8" SET SCREW	1015
• 16	1	O RING 2 7/8"ID, 3 1/4"OD, 3/16"W	2-336
• 17	1	POLYPACK 1 1/2" x 1 7/8" x 3/8"	18701500-375
• 18	1	O RING 2"ID, 2 1/4"OD, 1/8"W	2-226
19	1	INTERNAL SNAP RING (N-1300-225)	1947
20	1	1/4" x 1 1/2" ROLL PIN	1008-A
• 21	1	O RING 1"ID, 1 1/4"OD, 1/8"W	2-214
• 22	1	SEAL NP CR14938	CR14938
23	1	QUICK DISCONNECT 1/2" FEMALE SNAPTITE	1430
24	1	GLAND	LCR113



DETAIL "A"
SCALE: 3X

SPECIFICATIONS

MAXIMUM SPRING TRAVEL (PRELOAD TO SOLID) ..... 4.143 in.

MAXIMUM ALLOWABLE LOAD (SPRING FULLY COMPRESSED) ..... 4,092 lbs.

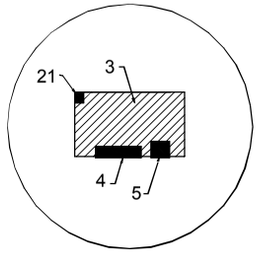
PRESSURE REQUIRED TO LIFT MAXIMUM ALLOWABLE LOAD ..... 1,303 psi

MAXIMUM ALLOWABLE INTERNAL PRESSURE ..... 3,000 psi

CYLINDER I.D. ..... 2.50 in.

ROD O.D. ..... 1.50 in.

STROKE ..... 34.94 in.



DETAIL "B"
SCALE: 3X

LIFT CYLINDER ASSEMBLY

ASSEMBLY NUMBER LCR100-C

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REV. #	LOG #	DATE
		03/29/04

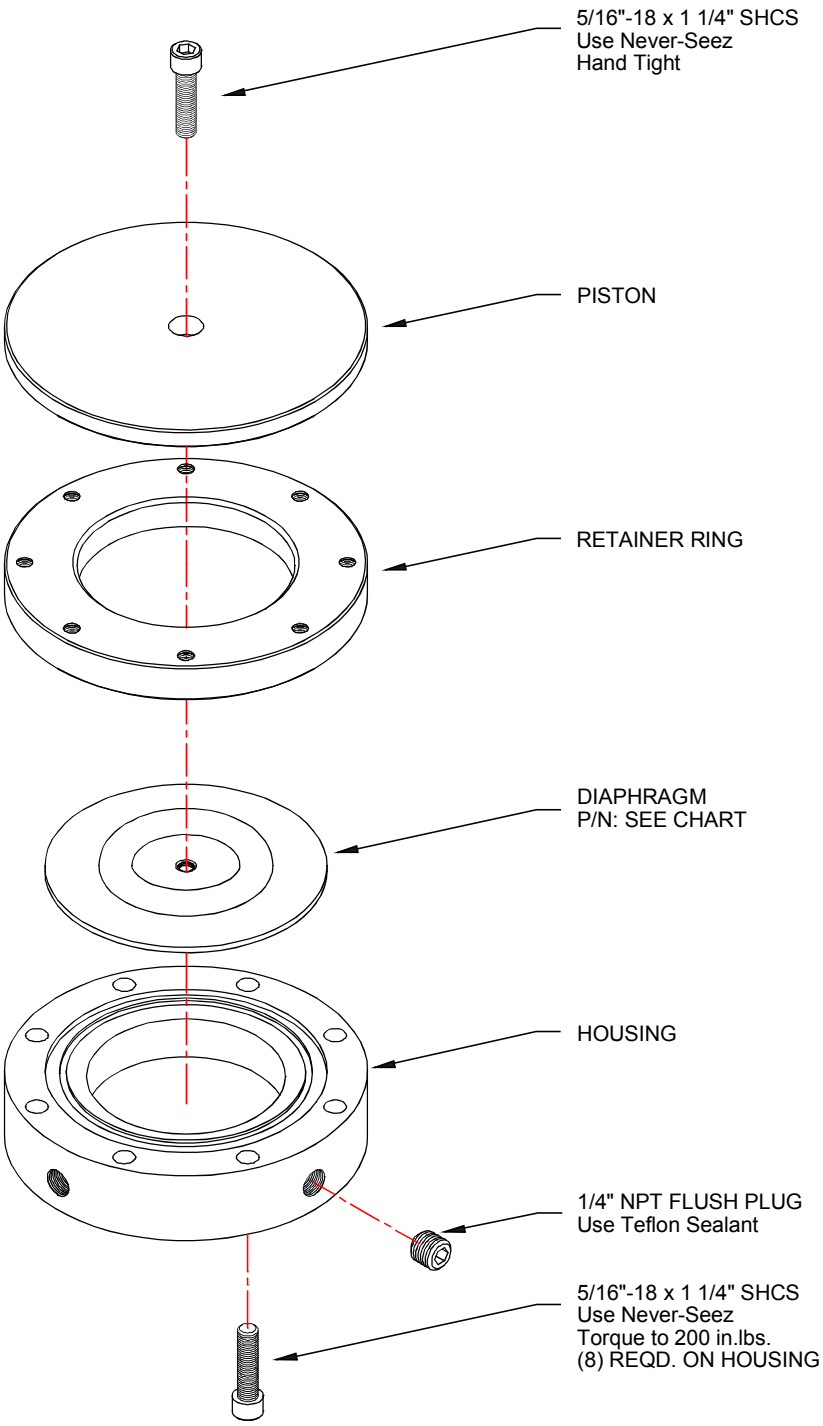
REF: S:\Equip Manuals\Dwgs\LCR\LCR100-C.wpg

CLINCHER® LOAD CELL AND TORQUE GAUGE ASSEMBLIES

The **CLINCHER®** Tong and Backup are available in versions which accommodate compression load cells or tension style load cells. All information contained in this Technical Manual refers to products which utilize compression load cells. Contact SUPERIOR for information concerning products using tension load cells.

Part Number	SM30-32-C
Torque Rating	30,000 ft lbs
Handle Length	32 inches
Loadcell Type	Compression
Loadcell Manufacturer	SUPERIOR MANUFACTURING & HYDRAULICS
Loadcell Part Number	CLC200
Torque Gauge Mfr.	TOTCO or equivalent
Torque Gauge Size	6"
Gauge Mount	“L” Bracket
Hose Length	6 ft.
Assembly Documentation	Calibration Certificate

CLINCHER® Load cells and Torque Gauges are produced by several manufacturers. The information provided by MD TOTCO or Acadiana Oilfield Instruments may not be applicable to all torque gauges or load cells. This reference information is provided with the permission of MD TOTCO and Acadiana Oilfield Instruments.



LOAD CELL SIZE	DIAPHRAGM P/N
6.44 SQ.IN.	CLC203
8.0 SQ.IN.	CLC205
12.0 SQ.IN.	CLC206
16.1 SQ.IN.	CLC207
25.0 SQ.IN.	CLC208

COMPRESSION LOAD CELL

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SECTION 13 MOTOR SERVICE MANUALS

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SECTION 14 VALVE TECHNICAL DATA

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